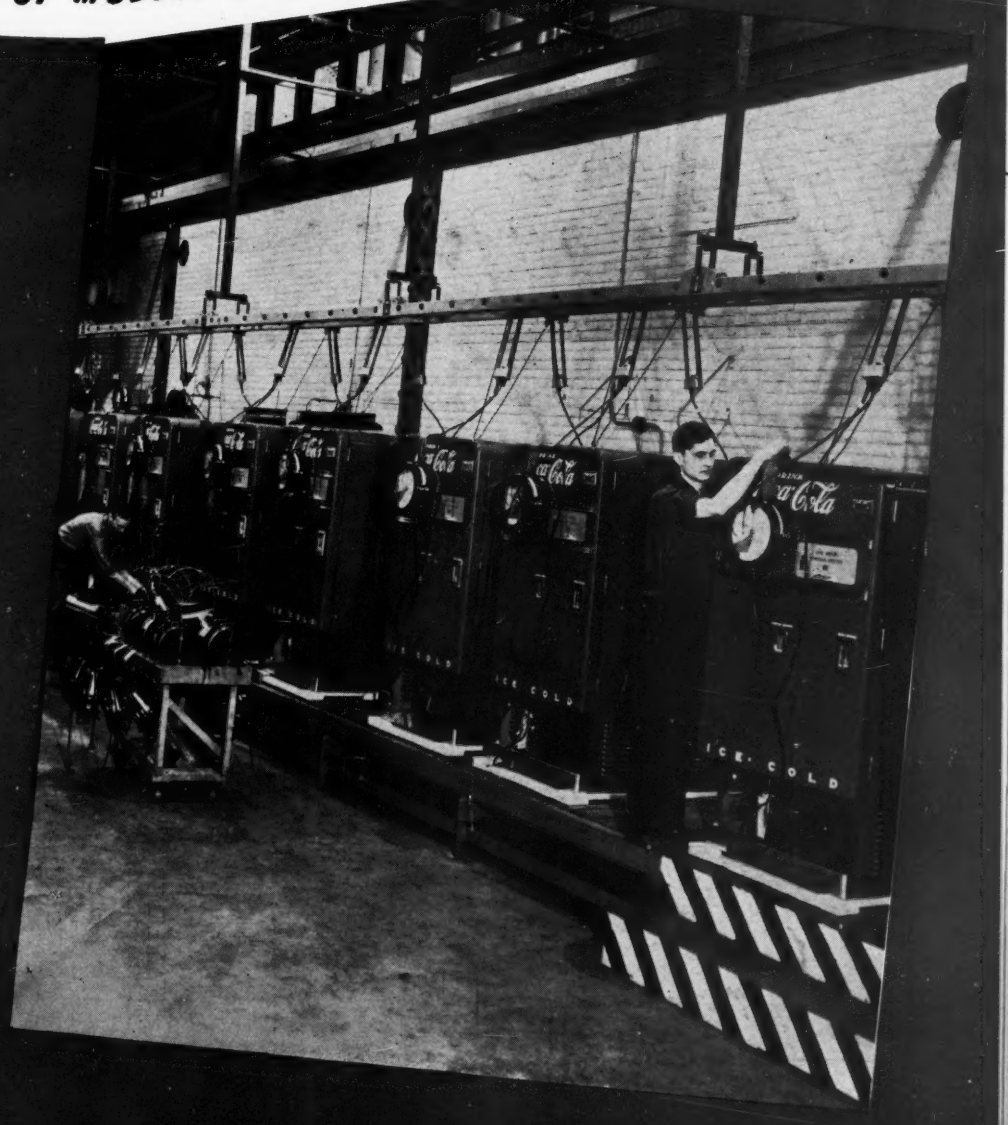
TECHNOLOGY DEPARTMENT

Flow

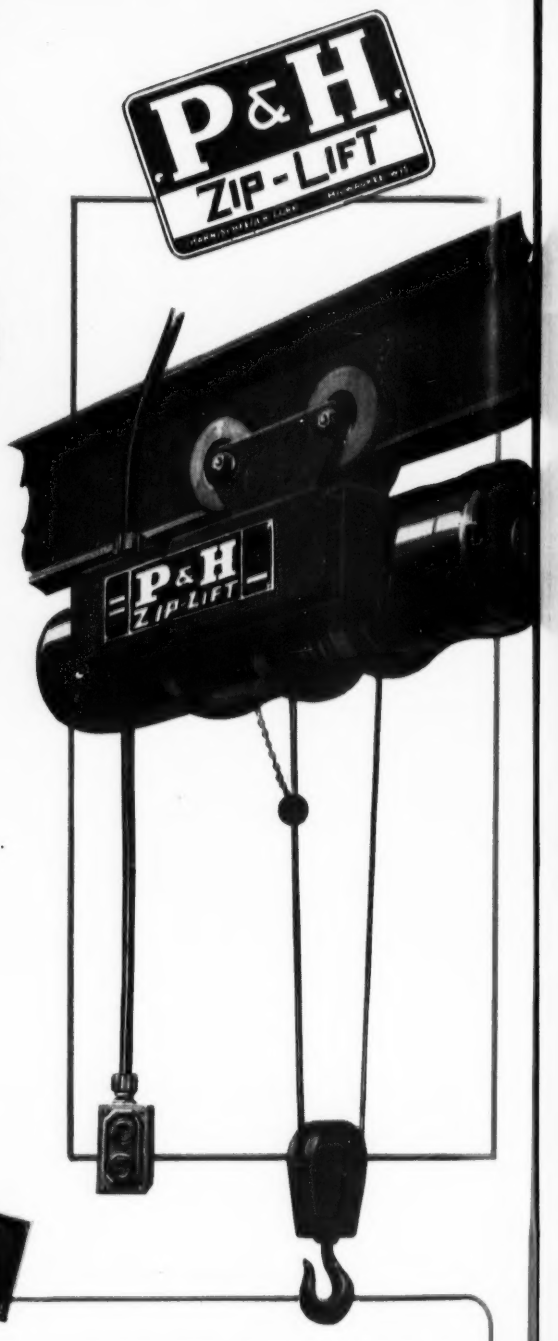
PUBLIC LIBRARY
DEC 28 1949
CLEVELAND

THE MAGAZINE OF MODERN MATERIAL HANDLING AND PACKAGING METHODS

JULY
1949



IN THIS ISSUE: { Mechanized Conveyor Assembly ... Wholesale Grocery Layout
Yard Crane Feeds The Plant ... Blooms Turned Without Tongs



LITTLE HOIST BIG VALUE!

Save every time you use it!

Next time you want to cut your departmental costs, think of the Zip! This small electric hoist costs so little — *saves so much* that you can't lose. You press the buttons; the Zip does the rest — with any load up to 2000 lbs.

The Zip-Lift gives you many extras, without extra cost. (Note the Added Values below.) In design, in power, in toughness, in dependability, the Zip adds up to America's finest small hoist — and the greatest small hoist value. That's what makes it the leader it is!

Write for this helpful booklet filled with practical cost-saving ideas. Ask for Bulletin H20-4!

Handle it "thru-the-air" at lower cost

THESE ARE ADDED VALUES!

SAFER — Full magnetic control with current reduced to 110 volts at the push-button. No open wiring. Plugging crane type limit switch and larger double brakes provide maximum safety.

LIFETIME CONSTRUCTION — Precision built — shaved gears running in oil — grease-sealed antifriction bearings — fully enclosed, moisture-proof, dust-proof, acid-proof.

SMOOTHER OPERATION—Motor specifically built for hoist service to withstand frequent reversal. Loads controlled within a fraction of an inch.

ALERT SERVICE — Out-of-stock delivery from qualified dealers everywhere — also backed by 18 branch offices and conveniently located warehouses.

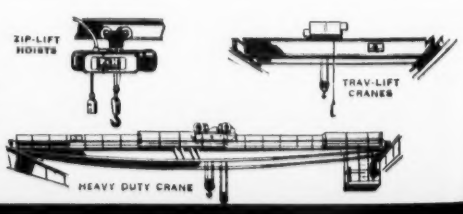
Available in capacities up to 2000 lbs.

P&H

ELECTRIC HOISTS
4643 West National Avenue
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION
HOISTS · WELDING ELECTRODES · MOTORS · P&H · EXCAVATORS · ELECTRIC CRANES · ARC WELDERS

HEVI-LIFT HOISTS



AMAZING NEW SKYLIFT CRATE-CLAMP DEVICE MOVES AND STACKS BULKY CRATES *WITHOUT PALLETS OR FORKS!*

In order to utilize all available space in box cars, the top tiers of crates can be placed horizontally. Clamp attachment is capable of handling in either vertical or horizontal position.

Raising load as he enters car, operator makes sharp right angle turn for positioning of top tier against side of car. As the car is loaded near the doorway, the operator can pull away from the tier immediately without maneuvering, since there are no forks to be withdrawn from beneath the load.

As load is moved into position, side shifting feature of attachment moves load laterally without the necessity of additional maneuvering. Such "jockeying" is often time consuming and, therefore, costly

SAVES INDUSTRY THOUSANDS OF MAN-HOURS

Cuts loading and unloading Costs More Than Half!

Entirely eliminating the need for forks or pallets in handling large bulky crates, a hydraulic clamp attachment applied to an Automatic Skylift Fork Truck, simply and easily grasps the top, bottom, side or end of crate, securing it firmly for carrying and stacking.

This crate clamp device, with side-shifting feature and push-button control, is an integral unit equipped with separate hydraulic pump and motor, rams, valves, fittings, etc. It is coupled only to the truck's electrical system, and is easily removed to substitute standard forks.

As can be seen by the pictures, this SKYLIFT Fork Truck with clamp is extremely maneuverable, can make sharp right angle turns, easily negotiates steep bridge ramps into box cars, lets operator load car right up to doorway.

The same ease with which operator loads car, is experienced in tiering in storage, as side-shifting feature is utilized to position load accurately.

With the clamp device for handling bulky crates, or in the regular model for moving and stacking any kind of product on pallets, Skylift pays big dividends in money and human energy saved, can cut your handling costs more than half. Mail coupon for complete facts. There is absolutely no obligation.

With a 4" lateral movement either right or left of center, or a total of 8 inches, accurate spotting becomes immediate, and easy, as operator merely pushes the electric control button.

Skylift
ELECTRIC TRUCKS
A PRODUCT OF AUTOMATIC

AUTOMATIC TRANSPORTATION COMPANY
DIV. OF THE YALE AND TOWNE MFG. CO.
141 West 87th Street, Dept. G9, Chicago 20, Ill.
Please mail me, without cost or obligation, complete facts on your Skylift with Clamp Device, and free catalog.

Company Name.....

By..... *Position*.....

Street Address.....

City..... *Zone*..... *State*.....

New GOULD "Z" Plate—

THE ONLY PLATE WITH THE SOLID, NON-POROUS GRID

Gould research engineers have developed a revolutionary new plate containing the only grid in existence that is non-porous and completely solid all the way through.

This new, non-porous "Z" grid is the result of "Progressive Solidification"—a new, advanced casting technique developed and perfected by the Gould Research Laboratories and proved in Gould's own pilot plant.

"Progressive Solidification" casting brings you more for-miles . . . more months at full capacity . . . more for your battery dollar than ever before.

Ask for literature on how Gould's new casting developments make Gould Batteries Stay New, Longer.

The Gould "Thirty"
More than ever—America's
Finest Industrial Truck Battery.

GOULD

STORAGE BATTERY CORPORATION

NEWARK 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

Flow

VOL. 4, NO. 10 • JULY, 1949

IRVING B. HEXTER, Pres.
LESTER P. AURBACH, V. Pres.
EDITORIAL DEPARTMENT
MANFRED SCHUELER
Editor

HENRY F. EATON
Associate Editor

PRODUCTION DEPARTMENT
WM. V. LINAS, Director

CIRCULATION DEPARTMENT
E. J. HEXTER, Director

FLOW EDITORIAL AND BUSINESS OFFICES—
HAROLD F. BEHM,
Business Manager

L. L. OPPENHEIM
1240 Ontario Street
Cleveland 13, Ohio
Phone: Tower 1-0264

NEW YORK OFFICE—
LEE HAAS
19 W. 44th Street
Room 412
New York 18, New York
Murray Hill 7-3420

CHICAGO OFFICE
ROBERT E. McKENNA
64 E. Lake Street, Room 1013
Chicago 1, Illinois
Andover 3-4972

LOS ANGELES OFFICE—
FRED FRISENFELDT
Industrial Publishing Co.
Room 403
1250 Wilshire Blvd.
Los Angeles 14, Calif.
Tucker 6703

All communications should be addressed to FLOW Magazine, 1240 Ontario Street, Cleveland 13, Ohio.

Flow Magazine is affiliated with the Industrial Publishing Company, which also publishes:

DIE CASTINGS
TAXICAB INDUSTRY
APPLIED HYDRAULICS
INDUSTRY AND WELDING
OCCUPATIONAL HAZARDS
COMMERCIAL REFRIGERATION AND AIR CONDITIONING

CONTENTS

COVER PHOTO—The dual bus ducts over this testing line made possible economical conveyor layout, which in turn balanced testing time with production rate. See the article "Synchronized Conveyor Assembly," page 24.

FEATURES

BIG RESULTS From LOAD UNIT Refinements—at Ford 21
Wholesale Grocery LAYOUT for MINIMUM TRAVEL 22
SYNCHRONIZED CONVEYOR ASSEMBLY 24
A YARD CRANE FEEDS THE ENTIRE PLANT—aggregate handling 27
Now TURN Blooms WITHOUT TONGS—new fork truck application 31
INDEX To FLOW ARTICLES—for the first six months of 1949 35
MAINTENANCE—The Parts. Part III. A control system 37
STONE HANDLING BROUGHT UP TO DATE—
fabricating sandstone 42
FLOW ENGINEERING DATA PAGE—a monthly feature 56

PACKAGING MECHANICS SECTION

A NEAT, SAFE PACKAGE—for a heavy assembly 60
It's In The BAG—packing cement in cloth and multi-wall containers 62
GOOD CONVEYOR LAYOUT—for tobacco packaging 65

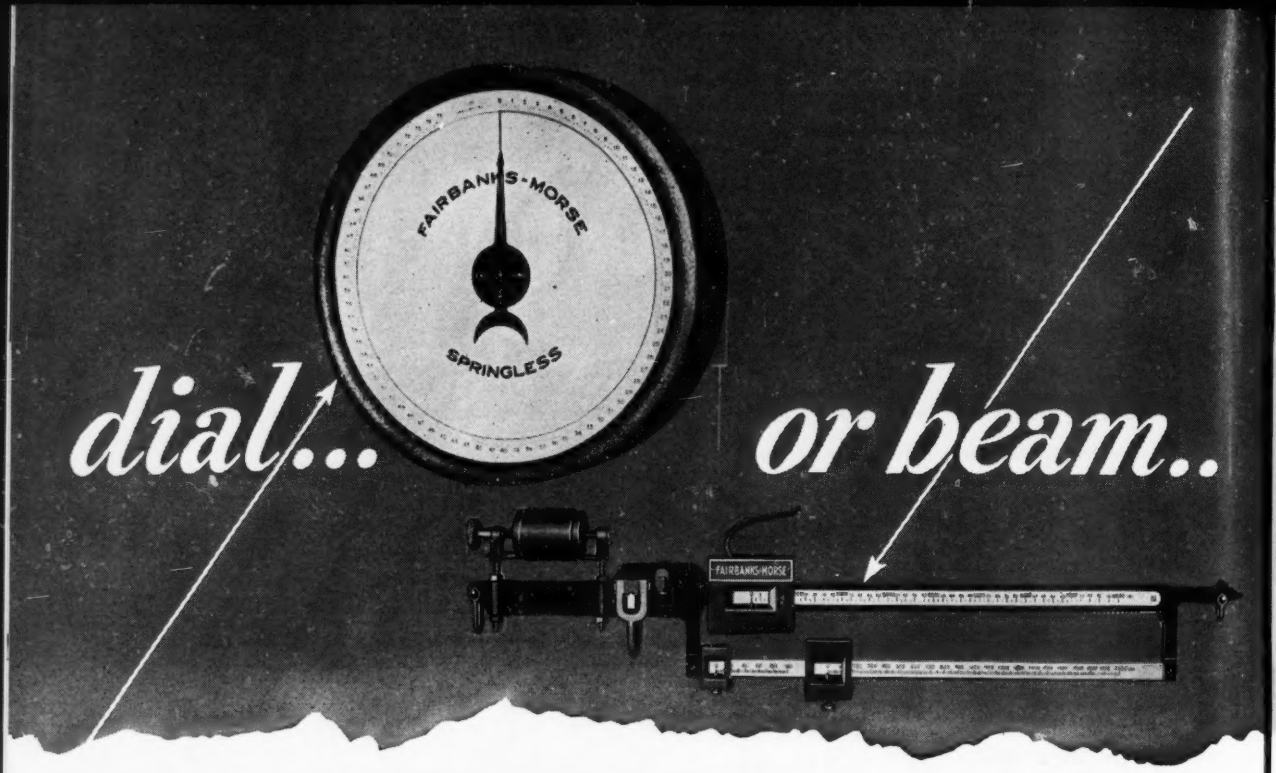
DEPARTMENTS

Institute Chapter and Association Activities 39
On The Pallet—news, views, trends 40
News From The Sales Field—about equipment distributors 41
New Products—equipment of interest 70
Men In The News—appointments and promotions 75
Useful Literature—free publications from manufacturers 78
Opportunities—lines and personnel wanted, etc. 81

FLOW is indexed regularly by Engineering Index, Inc.

SUBSCRIPTION RATES
United States and possessions—
$3.00 per year, $5.00 for 2 years,
$6.50 for 3 years.
Canada—$4 per year, $6.00 for 2 years.
Foreign—$5.00 per year.
Single copy prize—30 cents.

"Acceptance under the act of June 5, 1934, at Milwaukee, Wisconsin, authorized August 15, 1947."



FAIRBANKS-MORSE Scales are Better "all weighs"

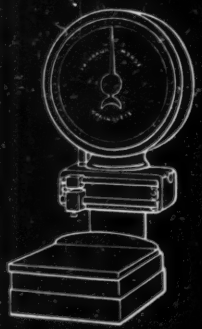
For all weighing operations, there is a Fairbanks-Morse Scale that exactly suits your requirements. Whether it is a Dial Scale or a Beam Scale, accuracy ... fast operation ... ease of reading ... long service ... are built-in Fairbanks-Morse advantages that provide the easy way to "weigh."

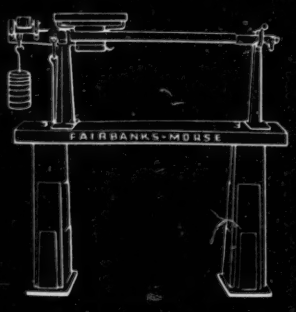
Fairbanks-Morse Printomatic Dial Scales and Type Registering Beam Scales are available to supply a printed record of all weights ... to eliminate the human element and simplify record keeping. Your Fairbanks-Morse weighing expert will be glad to review your weighing operations and recommend the scales that will help you "all weighs." Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE

A name worth remembering

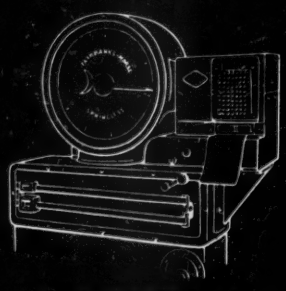
DIESEL LOCOMOTIVES • DIESEL ENGINES • PUMPS • SCALES
MOTORS • GENERATORS • STOKERS • RAILROAD MOTOR
CARS and STANDPIPES • FARM EQUIPMENT • MAGNETOS

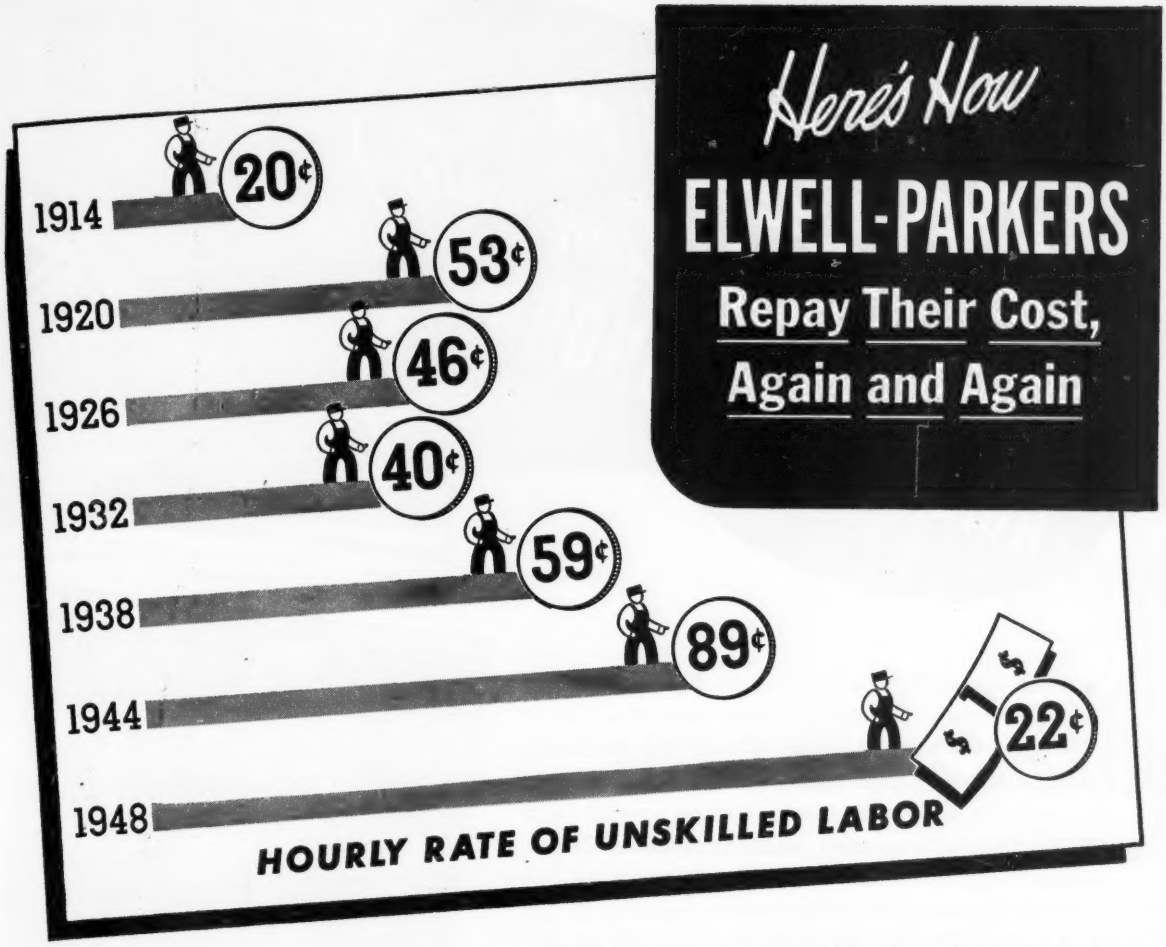

Bench Scale



Full Capacity Beam

Portable Dial Scale


Printomatic Dial Scale



E-P trucks do many jobs almost impossible by muscle power.

FREE 44-PAGE BOOK on Materials Handling. Ask for a copy of "Industrial Logistics".

Since 1914, labor has *increased* 500%, while the price of improved quality E-P lift trucks has about doubled. Scores of users have enjoyed these returns over a 20 to 30 year period, and continue to add to their fleet of Elwell-Parkers.

E-P Trucks do more than just surpass manual labor on the basis of operating costs. They also give these plus values:

1. **Provide greater safety for men and material.**
2. **Utilize valuable storage space by high tiering to roof. This is clear profit.**
3. **Increase production by synchronizing flow of materials to and from interrelated machinery.**

Since Elwell-Parkers are a *better buy than ever before,* you will profit by having an EP man advise you *now* about your trucking needs. The Elwell-Parker Electric Company, 4539 St. Clair Avenue, Cleveland 3, Ohio.

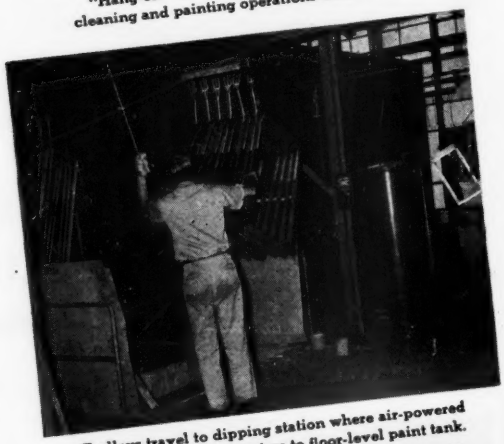
ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

Established 1893

Storm Sash on Mass Production with AMERICAN MONORAIL

"Hang-on" station with upper level track over the cleaning and painting operations shown in background.



Trolleys travel to dipping station where air-powered drop section lowers carriers to floor-level paint tank.

Finished sash travel through oven on monorail tracks which extend through rear door to stock bank.

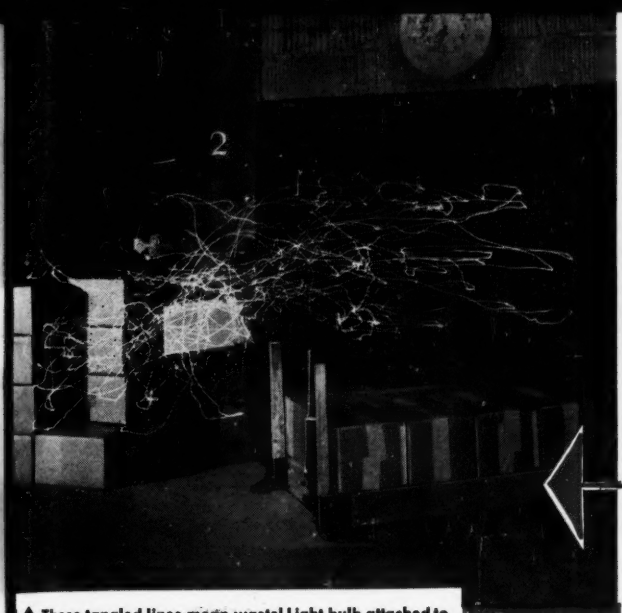
• A well-known manufacturer of steel office furniture has successfully undertaken mass production of screen and storm sash. A continuously operated finishing department, with a capacity of 80 storm sash and component parts per hour, is made possible by a 300 foot manually operated American MonoRail Overhead Handling System. Of a staff of 60 personnel, only 5 are required in the finishing department. The American MonoRail system transports all the pieces from cleaning and priming tanks to paint dipping vats to ovens to storage. Manual operation was chosen because of the diversity in size and shape of the pieces being finished.

From the simplest hand-operated unit to the most complicated fully automatic system. American MonoRail engineers can suggest a system best suited to **YOUR** problems.

SEND FOR BULLETIN C-1, a 56-page book showing successful applications of American MonoRail Systems.

THE AMERICAN MONORAIL COMPANY

13129 ATHENS AVENUE **CLEVELAND 7, OHIO**



▲ These tangled lines mean waste! Light bulb attached to the man's wrist gives you the actual camera's record. Figure the time—the effort—the cost . . . *wasted!*

Compare it with the Barrett way—where big skid loads move as a unit—at a moment's notice . . . at a fraction of the cost.

stop!

this waste motion NOW!

BARRETT LIFT-TRUCKS *and* SKIDS

are the Low-Cost way!

Why pay for more costly, elaborate equipment when Barrett Lift-trucks and Skids provide the basic answer to your handling requirements? Actually, the big cost factor to eliminate is the repeated loading and unloading . . . piling and unpiling.

You end all this with the thrifty Barrett System. Then, from room to room, floor to floor, in and out of storage . . . loads *stay* on the skids, always ready to roll with a sweep of the Lift-truck handle. It's quicker, easier and far more practical. And best of all . . . *one man does the work of three or four!*

Write for full details.

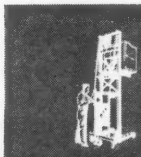
BARRETT-CRAVENS COMPANY

4619 South Western Blvd. • Chicago 9, Illinois

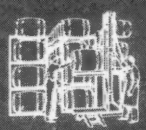
Representatives in All Principal Cities

Canadian Licensees: S. A. Armstrong, Ltd., Toronto, Canada

Send for your free copy of the Barrett Junior Catalog.



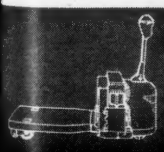
PORTABLE ELEVATORS



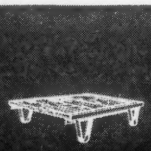
STEEL STORAGE RACKS

BARRETT

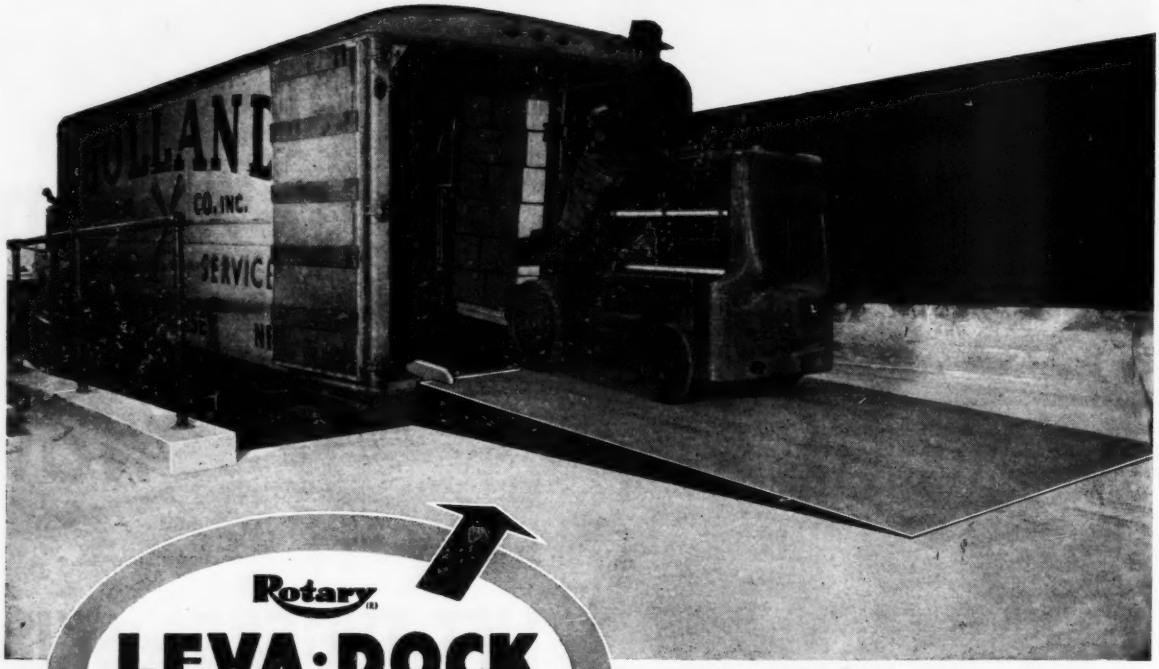
ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT



Barrett Handling Equipment



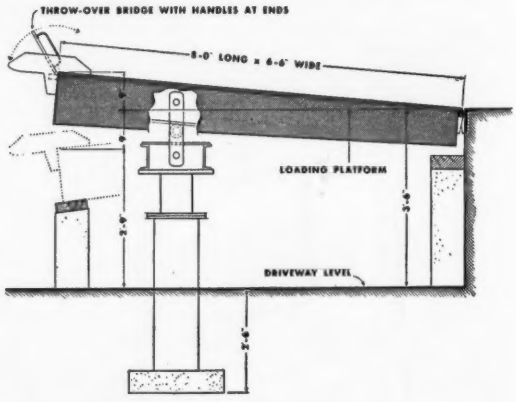
NEW WAY TO LOAD TRUCKS FAST



Rotary®

LEVA·DOCK

ADJUSTABLE RAMP
FOR LOADING DOCKS



The Leva-Dock moves up and down with varying truck bed levels—permits loading directly into trucks or trailers

Loading and unloading trucks and trailers presents a tough loading dock problem because (1) truck bed heights vary as much as 12 inches, and (2) the truck bed moves down or up as loading and unloading progresses. This problem has been made very serious by the use of power vehicles handling heavy loads.

The Leva-Dock makes it possible to load directly into or unload from all types of trucks or trailers . . . without using steel plates, bridge ramps, or other slow and frequently dangerous methods. It is being used by leaders in industry, and has been approved by architects and engineers as one of the most practical pieces of building equipment developed in recent years. Installation is simple and inexpensive.

ROTARY LIFT CO.
1007 Kansas, Memphis 2, Tenn.

MAIL COUPON FOR COMPLETE DATA →

How the Leva-Dock Operates

The Leva-Dock is a hinged platform with hydraulic jack. With front end of the Leva-Dock platform raised, the truck or trailer is backed into position for unloading or loading. Then the Leva-Dock platform is lowered until the heavy supporting arms rest on the truck or trailer floor. The gap between the Leva-Dock and the vehicle is bridged by a steel "throw-over" bridge. The hydraulic system is then released so that the front end of the platform is free to travel up or down with the truck bed as truck springs are relieved or compressed during loading and unloading.

Rotary Lift Co., 1007 Kansas, Memphis 2, Tenn.
Firm.....
Attention.....
Address.....
City & State.....

BRAINARD STRAPPING Used in Welder Production by Lincoln Electric

HERE is how Lincoln Electric, internationally known manufacturer of arc welding equipment, has found strapping a versatile production item. Brainard strapping is used to secure heavy leads to coils, to fix coils securely in position in transformers and to fasten mounting lugs on fuel tanks.

Like Lincoln, many other manufacturers are utilizing Brainard strapping as a production item and are finding that it can help in many ways in the problems of building better products faster at lower costs.

Our engineers welcome the opportunity to study your packaging problems and recommend the most efficient method of strapping your shipments or products. No obligation. Write today.

Strapping a coil in A.C. transformer of Lincoln Electric Welder. Strapping holds coil fast for the life of the machine.

Securing heavy leads to electric coil. Strapping operations of this nature add to product serviceability, cut assembly time and lower costs.

Fixing mounting brackets to fuel tanks with Brainard galvanized band. Here again strapping enables manufacturer to make a better product faster.

SHARONSTEEL

BRAINARD STEEL COMPANY
WARREN, OHIO Dept. F-79

BRAINARD STEEL CO. Dept F-79 Warren, Ohio

Please send me the latest Brainard catalog on steel strapping and strapping accessories.

Name.....

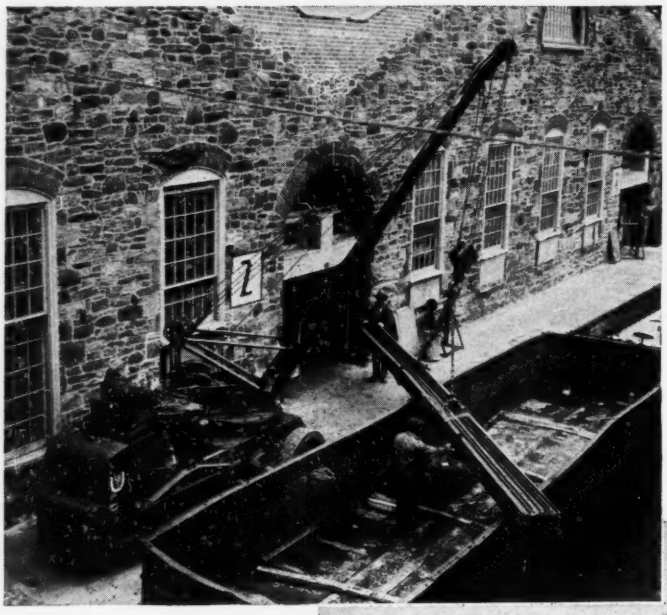
Title.....

Company.....

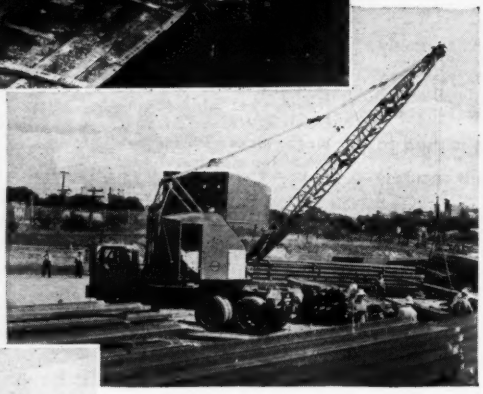
City..... Zone..... State.....

Expedite MATERIAL HANDLING STORING—ASSEMBLING

with **LINK-BELT SPEEDER** *Shovel-Cranes*



Cargocrane unloads strip steel at factory warehouse. Low slung and with telescopic boom, it can carry its load right into the building.



Zephyrcrane makes light work of unloading and piling poles.

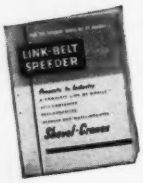
UC-55 expedites handling of heavy steel castings.
HC-70 Truck-Crane in wide area storage yard. With speeds up to 30 m.p.h. the Truck-Crane cuts travel time to minimum.

Loose or bulk material, steel and lumber, product parts in course of assembly—you handle any or all of them effectively with Link-Belt Speeders.

Lifting attachments are quickly interchangeable to provide hook-block, grapple or clamshell bucket for any specific type of material.

Link-Belt Speeder wheel-mounted cranes range from the YC-9 with a lifting capacity up to 10 tons, to the HC-90 truck-crane with capacity of 25 tons, and boom lengths of 100 feet plus jib.

11.483



This book illustrates and describes many different applications of Link-Belt Speeders to material handling. You'll find helpful information and suggestions here — Send for a copy — NOW!

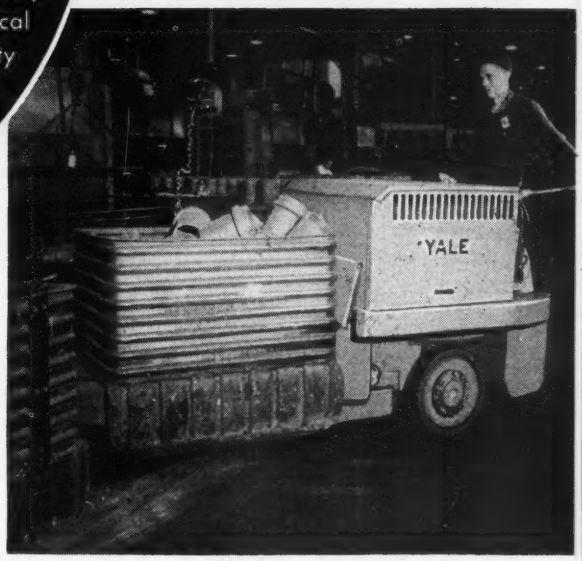
LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS IOWA

Builders of the Most Complete Line of SHOVELS-CRANES-DRAGLINES

this is low-cost handling!

LOW-COST HANDLING is the result of a practical system of material movement integrated with the right kind of handling equipment. Wherever Yale Material Handling Machinery goes to work, permanent economies show up. For instance, a publisher reduced the cost of handling newsprint to less than 1¢ a ton by using Yale Trucks. The cost of shipping operations was cut 75% by a sugar company with the help of similar equipment. Yale Hoists reduced sheet metal handling time from 8 hours to 1 hour for another manufacturer. Such savings indicate the size of *your* opportunity to cut costs. Increased production, maximum use of vertical storage space, far less worker fatigue and greater safety are other benefits. So—learn how Yale Hoists, Trucks and Scales can bring new efficiency and economy into your handling operations. Phone the nearby Yale representative or write to headquarters.

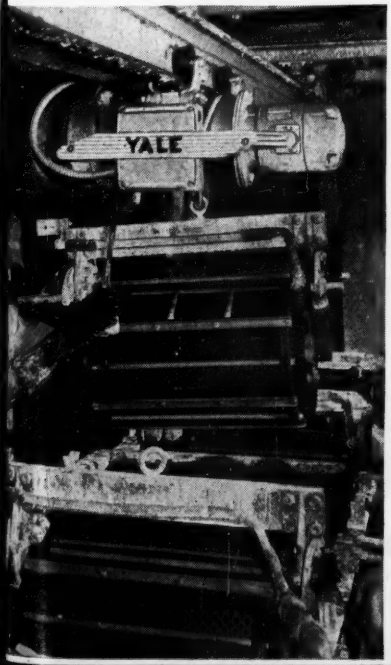


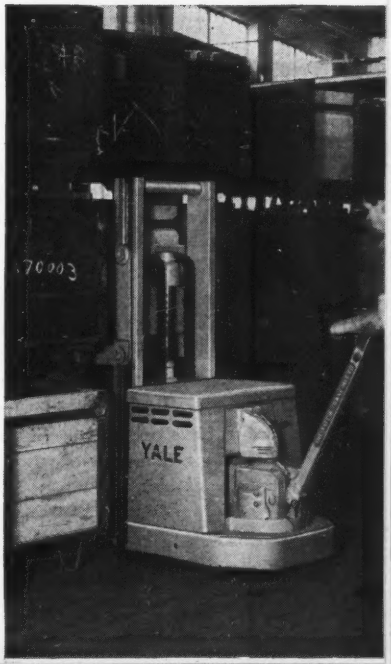
YALE
TOOLS THAT KEEP INDUSTRY "ON THE MOVE"

THE YALE & TOWNE MANUFACTURING COMPANY

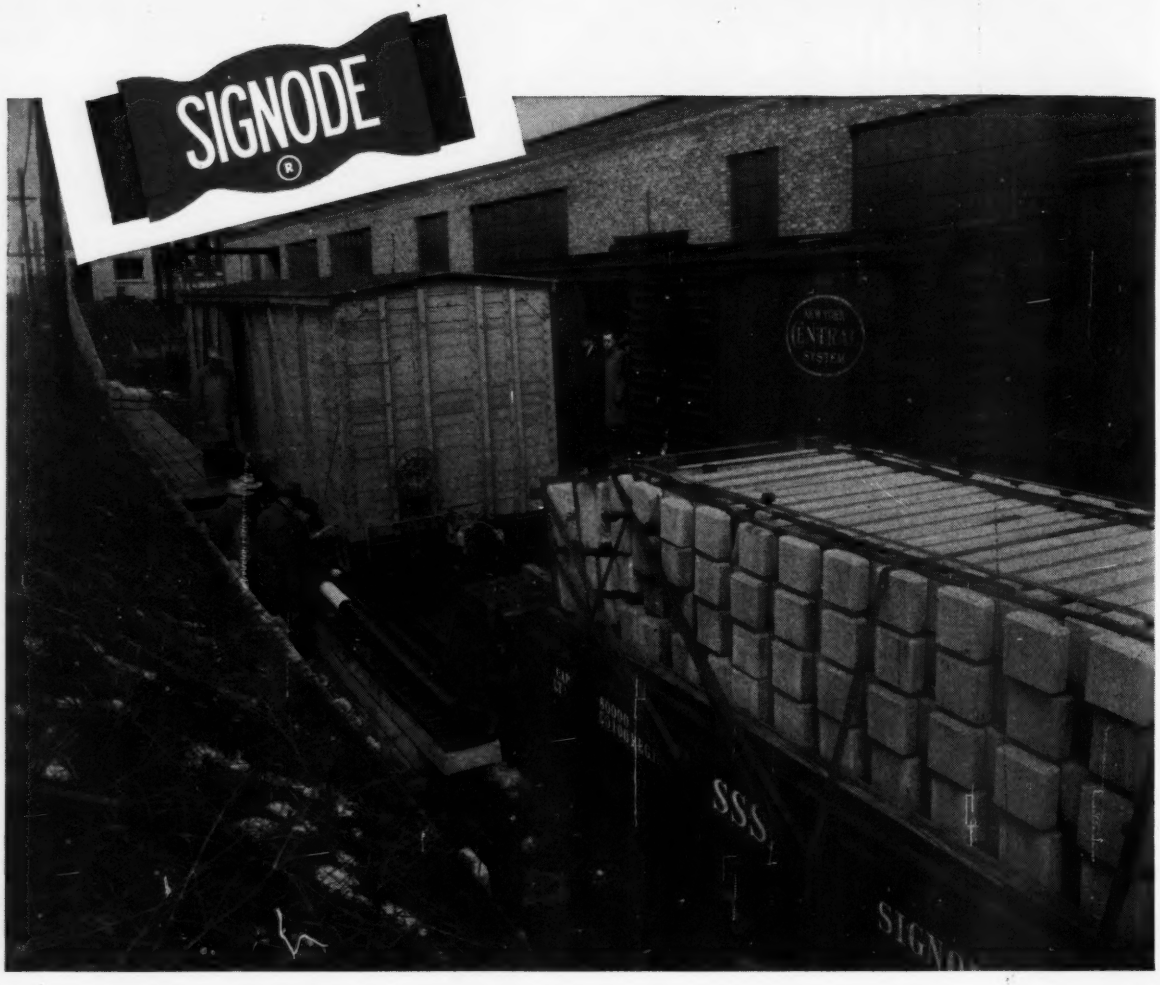
Department L-39

Roosevelt Boulevard • Philadelphia 15, Pa.





TRADE YALE MARK



A crash that can put cash in your pocket

Products that travel cross-country often get a rough ride—particularly if they're improperly braced or packaged. For sudden starts and stops can't always be avoided, and the effect on a freight car's contents can be costly.

To find out by controlled laboratory methods how best to protect *your* shipments under these conditions, Signode devised the realistic test pictured above. This is the only full-size test track in the nation used exclusively for perfecting packaging and shipping methods.

Real freight cars, specially constructed for observing and recording purposes, are loaded with different types of commodities. Then these cars are crashed together and their contents examined.

From such tests, Signode engineers get answers that make sense to questions practically all shippers have asked.

If *you* would like to get the benefit of this research; if you would like to have one of our representatives discuss your packaging and shipping methods with you . . . with a view toward cutting costs and damage claims, write

SIGNODE* *means*—

- Steel strapping
- Strapping tools
- Power strapping machines
- Special lithographed seals
- BrakemaN* plates
- Anchor plates
- Retaining strips
- Retaining doors

*Reg. U. S. Pat. Off.

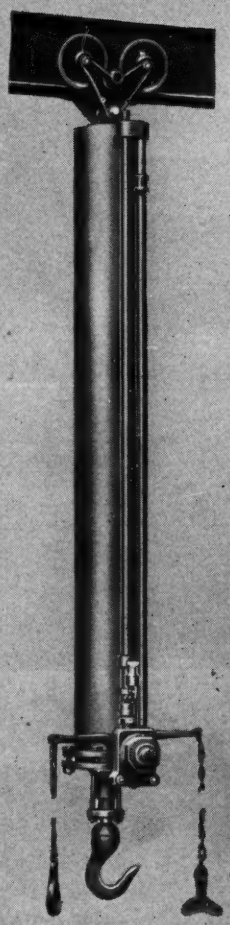
SIGNODE STEEL STRAPPING COMPANY

2618 N. Western Ave. • Chicago 47, Illinois

SIGNODE* RESEARCH ASSURES BETTER SHIPPING PROTECTION

CURTIS AIR CYLINDERS

Increase Plant Efficiency—Decrease Production Costs



Curtis Air Cylinders for lifting, lowering, pushing or pulling GIVE YOU—

- Smooth, fast, accurate control of loads
- Capacities exceeding 10 tons
- Finger-tip control—one-man operation
- All-steel construction
- Immunity to overloads
- Low first cost, lowest operating expense
- Indoor and outdoor service

It will pay you to investigate Curtis first

95 Years of Successful Manufacturing

CURTIS

PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1909 Kienlen Avenue, Saint Louis 20, Missouri

Curtis Pneumatic Machinery Division of Curtis Mfg. Co. 1 49-3
1909 Kienlen Ave., St. Louis 20, Mo.

I am interested only in items checked below:

☐ Air Hoists
☐ Air Cylinders
☐ Air Compressors

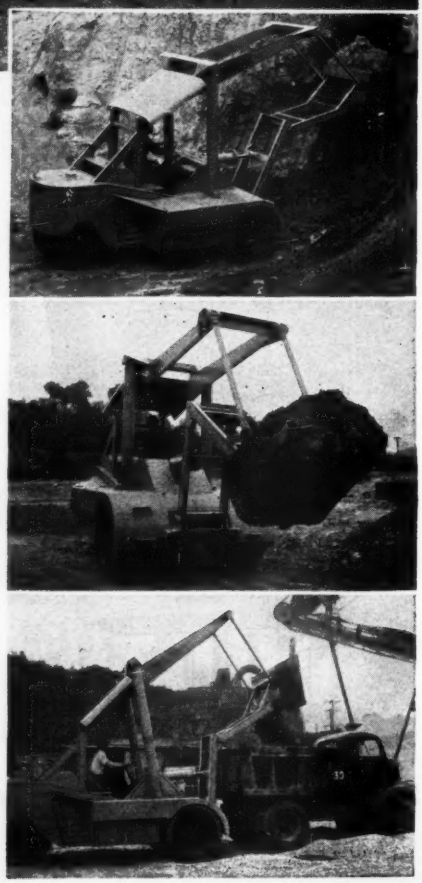
Name.....
Firm.....
Street.....
City.....Zone.....State.....

it DIGS...it LOADS at tremendous savings

the DEMPSTER DIGGSTER
TRADE MARK REG

Whether you need it for excavation work or loading from stockpiles or both, you need the new low production cost of the Dempster-Diggster. Here is the only small shovel that works on a hydraulic, simultaneous or independent crowd and hoist action and completely eliminates tractive effort in loading with wheels. Its variable crowd action at any dipper position means the Dempster-Diggster can dig lower . . . 15 inches below grade. Exclusive hoisting action means it can dig higher . . . digs out a 15 ft. bank. It's the only small shovel featuring such speed and mobility . . . travels at truck speeds on the road . . . gets in tight places on big jobs, freeing large shovels for heavier work. Ideal for the small and medium size excavation jobs yet powerful and fast enough for big jobs.

Stockpiling or loading work is easy for the DEMPSTER-DIGGSTER. Its speed . . . its 15 ft. turning radius . . . its extraordinary dumping reach help the Dempster-Diggster complete the average loading job in an amazingly short time. Dempster-Diggster buckets are easily interchangeable and are availab'e in three sizes. 1 cu. yd. (heaped) with hardened steel teeth for digging . . . 1½ and 2 cu. yd. for loading and stockpiling work. Power is supplied by a heavy duty gasoline or diesel engine. Hoisting, crowding, steering and braking are all 100% hydraulic. For complete information, write today for Folder Number 8154.



Large photo above shows Dempster-Diggster loading crushed stone. Note how independent crowd and hoist action permits bucket to follow the slope of the material. At right, top: Digging out high bank. Right, center: Closeup of 1 cu. yd. (heaped) digging bucket. Right, bottom: Dumping crushed stone into truck.

DEMPSTER BROTHERS INC.

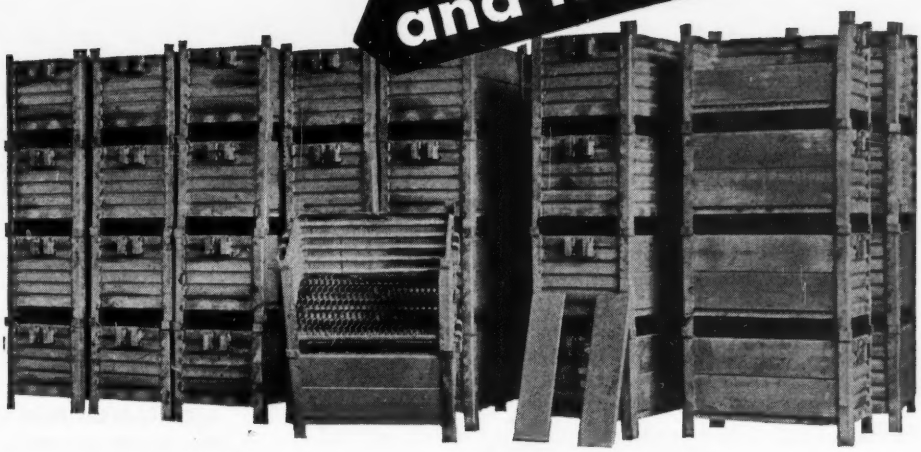
879 N. KNOX, KNOXVILLE 17, TENNESSEE

TRUSCON

OPEN SIDE STEEL BOXES

speed efficiency

through side-loading and tiering



● Look at the advantages of Truscon Open Side Steel Boxes: *They save space!* Tiered boxes use only the floor space required for the bottom box. ● *They save time!* No stacking and unstacking to get at stock; open sides make contents of boxes available at all times. They save labor! Because they save time. ● *They aid inventory!* Always open, or easily opened for counting and inspecting stored stocks. ● *They aid production!* Workers can select materials quickly and easily. Materials can be grouped by size, type and thickness. ● *They aid shop maintenance!* By occupying small floor space and by being transportable while tiered, Truscon Steel Boxes make it easy to keep shop floors clean and repaired.

Truscon Open Side Steel Boxes are made in various sizes to fit individual requirements. They are fabricated from heavy gauge steel sheets of uniform thickness, into which deep reinforcing ribs are pressed to produce maximum strength and rigidity. Despite their rugged construction, they are comparatively light in weight, and can be used for any type of commodity, with hand or power lift trucks or cranes.

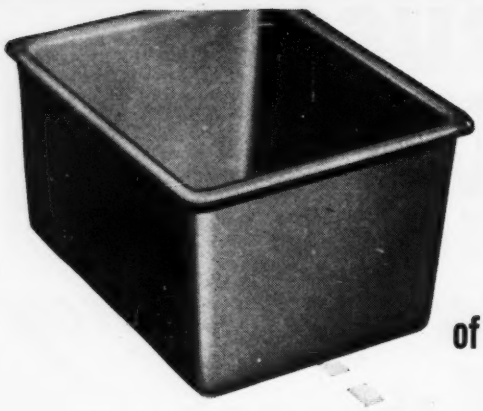
Investigate the possibilities of using Truscon Open Side Steel Boxes in *your* plant . . . and enjoy the advantages these efficient material handlers can give you.

Write for Truscon Materials Handling Equipment Catalog, which shows entire line of Steel Boxes and Skids, complete with illustrations and specifications.

TRUSCON STEEL COMPANY

PRESSED STEEL DIVISION • 6100 TRUSCON AVENUE • CLEVELAND 4, OHIO

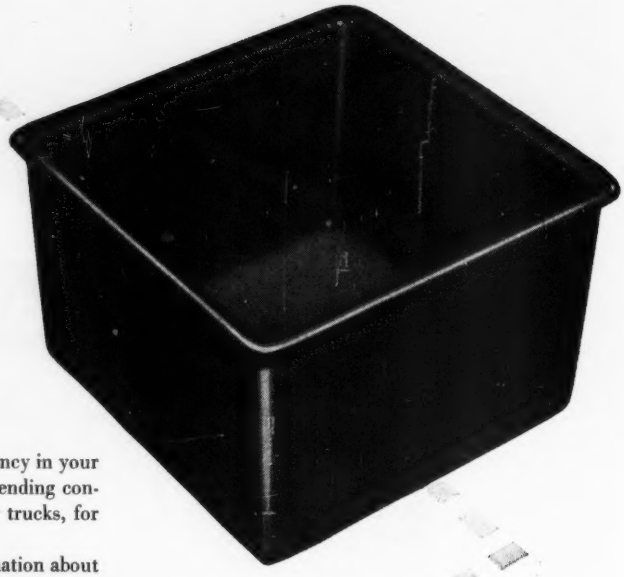
SUBSIDIARY OF REPUBLIC STEEL CORPORATION



A new sensation in handling!

Tote Boxes

of U. S. Royalite—a tough, synthetic composition that's safe, light, economical!



More Efficient—¼ weight of usual containers. Cuts down fatigue, eliminates noise.

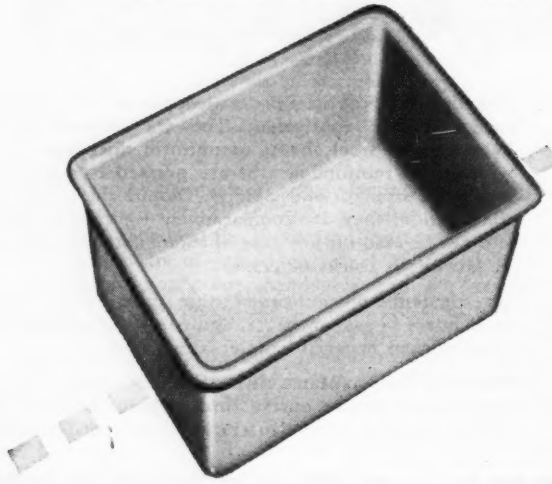
Odorless, non-conductive. Identification colors end confusion.

More Safety—Unbreakable, non-splintering, no jagged edges.

Longer Wear—Non-warping, non-corrosive. Not affected by oils, most acids, alkalis. Water-proof, stain-proof, mildew-proof. Easy to clean.

How many ways can these boxes expedite efficiency in your plant? They're remarkable for lightening work, ending confusion because of color identification, on carrier trucks, for all filing and classifying of parts.

Your own fabricator can obtain for you information about U. S. Royalite—tell you how it can serve many industrial purposes. Or, ask us for proper fabrication techniques developed by our engineers. Their experience is ready to work for you.



BOXES IN READY-MADE SIZES

Here are a few of a wide range:

Inside Dimensions:			
Length	Width	Depth	Weight
18.0	12.0	6.0	2.20
18.0	12.0	12.0	4.80
22.0	14.0	12.0	6.00
22.0	16.0	8.0	3.68
24.0	18.0	14.0	8.25
25.0	25.0	14.0	10.20

Also sizes made to order

U.S. Royalite

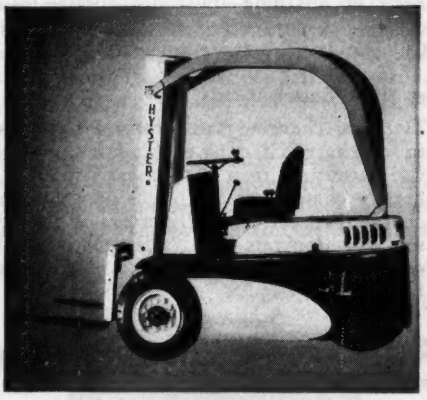
UNITED STATES RUBBER COMPANY

Serving Through Science

2638 PULASKI ROAD NORTH, CHICAGO 39, ILL.

THE BEST LIFT TRUCK FOR INSIDE WORK

Inside your plant with a HYSTER® LIFT TRUCK



The complete Hyster line of trucks—7 models (2,000 lb. to 30,000 lb. capacity) are gasoline powered; all are equipped with pneumatic tires. Illustrated at top of page is Hyster 20; above, Hyster 40.

Saves Floors...Cuts Maintenance Costs. More Speed, More Traction, More Maneuverability.

The Hyster Pneumatic Tire "Easy Ride" is easy on floors—easy on the load—engineered for greater maneuverability in narrow aisles and crowded warehouse spaces. HYSTER IS THE IDEAL LIFT TRUCK FOR INSIDE WORK.

Big PNEUMATIC TIRES CUT DOWN FLOOR SURFACE REPAIRS, practically eliminate damage to costly floors. TRACTION and RAMP CLIMBING ability is increased. Operator fatigue is reduced.

Your Hyster Distributor will demonstrate a Hyster 20 (2,000 lb. capacity) or a Hyster 40 (4,000 lb. capacity) for your *inside and outside* materials handling jobs. You can check your own savings. SEE FOR YOURSELF or write for literature.

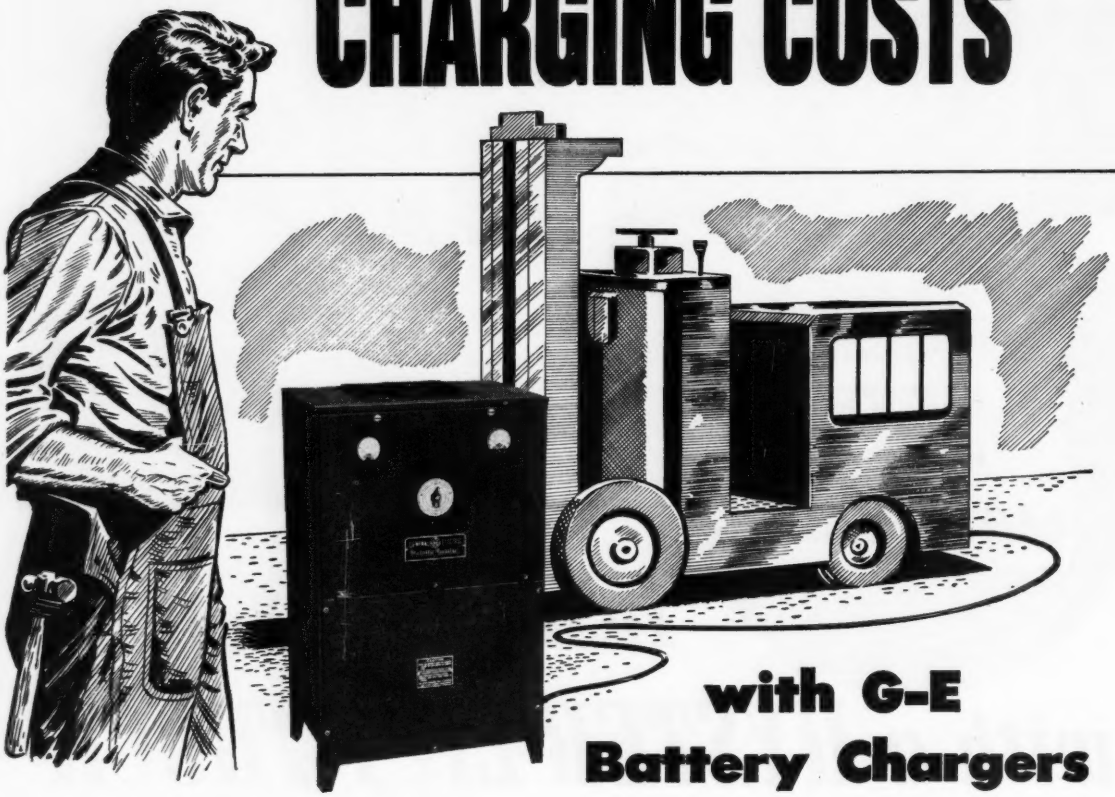
HYSTER COMPANY

THREE FACTORIES

2931 N. E. CLACKAMAS STREET . . . PORTLAND 8, OREGON
1831 NORTH ADAMS STREET . . . . . PEORIA 1, ILLINOIS
1031 MEYERS STREET. . . . . DANVILLE, ILLINOIS

HYSTER

GET LOW ELECTRIC-TRUCK CHARGING COSTS



with G-E Battery Chargers

- **Low Current Costs**

The heart of the G-E Battery Charger is its copper-oxide rectifier stack—proved highly efficient throughout a virtually unlimited life.

- **Low Maintenance Costs**

Nothing moves except a fan, requiring only occasional lubrication—plus full protection against both mechanical and electrical failures.

- **Low Labor Loss**

Spotting these economical chargers throughout a plant means no long wasteful excursions to charging areas. No waiting for an expert to hook up charging apparatus. Special training or skill is not needed to use a G-E Battery Charger. It's simple—automatic.

- **Low Battery Costs**

Two-rate charging safely brings batteries up to full charge. Starting with a fast charge when the battery is in a discharged condition the battery charger rapidly builds up a substantial charge then automatically tapers off to a slow, safe finishing rate. This safe, gentle handling during charging helps batteries maintain their full rated service life.

For complete details see your local electric truck dealer or write Apparatus Department, General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

456-202

New FAIRBANKS *Series "21"* Caster has *NO King-Pin!*

Revolutionary "LOCK-WELD" Construction removes the cause of most caster failures

Look at the Difference!

between the king-pin and "LOCK-WELD" construction, after extensive laboratory and use tests under widely varying floor conditions!

FAIRBANKS® SERIES "21" Swivel Caster "LOCK-WELD" CONSTRUCTION

For as long as most of us can remember, the king-pin has been the cause of most caster failures. Now, Fairbanks has licked the problem!

As a result of numerous designs and models tested, Fairbanks has developed the Series "21" — a pressed steel swivel caster with the unique "LOCK-WELD" construction. This revolutionary construction eliminates the king-pin and locks the curved top of the fork between the top and retaining plate so that the ball race sections remain properly aligned, even under excessive overloads. *Proper alignment assures easy swiveling.*

Fork design of the Fairbanks Series "21" Swivel Caster has been scientifically engineered to eliminate distortion under conditions of overload and shock. A series of arches built into the legs affords maximum dispersion of direct and thrust loads over the entire ball race — there's a purpose to every twist.

Cutaway view of "LOCK-WELD" Construction

SWIVEL AND RIGID TYPES

Fairbanks Series "31" Rigid Casters have the same overall heights as the Series "21" Swivel Casters. Wheels are available in several types: semi-steel with plain or roller bearings; solid rubber with oilless bearings; vulcanized rubber with roller bearings; plastic with plain or roller bearings.

For truly longer-lasting casters, specify Fairbanks Casters. Use coupon or write for free bulletin describing this latest improved line of casters. The Fairbanks Company, 393 Lafayette St., New York 3, N. Y.; 520 Atlantic Ave., Boston 10, Mass.; 15 Ferry St., Pittsburgh 22, Pa.; 202 Division St., Rome, Ga.

fairbanks COMPANY

The Fairbanks Company, Dept. A
393 Lafayette St.
New York 3, N. Y.

Please send me the free Bulletin 21-31

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

FIVE-FOLD Slyver-Clad

● **KOROSEAL** Perforated Retainer . . . two used . . . bottom grid frame completely insulated . . . envelopes entire plate and presses against Slyver and two glass mats.

● **MICROPOROUS RUBBER SEPARATOR** . . . impervious to heat, electrolyte and oxidation . . close spaced for uniform pressure against Slyver-clad plates . . . high porosity and low electrical resistance.

● **SLYVER** . . . thick layers of infinitely fine glass fibres . . . laid parallel in vertical position . . America's BEST retention.

● **EXPANSION MAT** holds Slyver firmly in place . . . provides expansion space to eliminate unnecessary element strains.

● **SECOND EXPANSION MAT** completely envelopes both plate surfaces and sides . . . permits free acid circulation . . a third insulator.

COMPLETELY ILLUSTRATED CATALOG IT-515 AVAILABLE ON REQUEST

C&D BATTERIES, INC.

TELEPHONE · DIESEL · ELECTRIC INDUSTRIAL TRUCK · LOCOMOTIVE · STARTING & LIGHTING

Established 1906 **of Conshohocken, Pa.** SALES AND SERVICE IN PRINCIPAL CITIES

BIG Results From LOAD UNIT REFINEMENTS

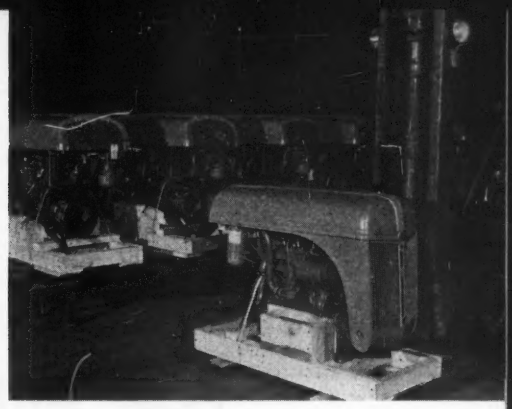


FIGURE 1—This simplified saddle cut crating cost 70 per cent.

AFTER a plant-wide modernization project has been in operation for a time, alert engineers follow up with small refinements which help obtain maximum benefit from the over-all installation. Such changes often spell significant cost reductions through further methods improvement, and can usually be undertaken only after the new major procedure has been studied for a time. A good example is the Ford Motor Company's Tractor Division, Highland Park, Mich. A return visit by FLOW editors revealed a number of departmental revisions that had been engineered some time after a plant-wide palletization project had been introduced. *(FLOW for December, 1946, carried a detailed report on the overall handling operations at the Ford Tractor Division.—Ed.)* Typical examples are herewith presented for the information of our readers; they show that continued study of methods already improved can unearth new improvements and additional economies.

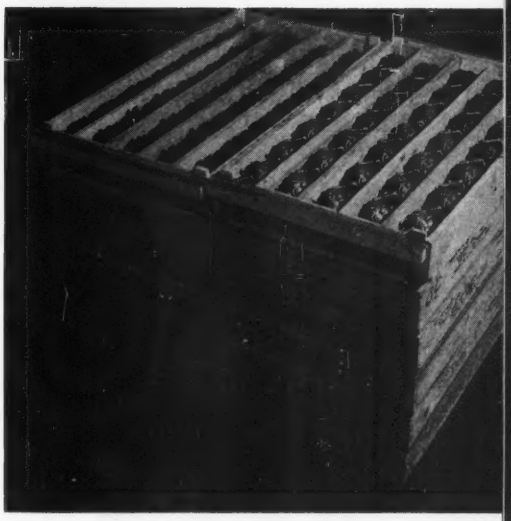


FIGURE 2—Tray pack holds 420 governors. (Cartons held 24.)

A NEW crating method for industrial engines weighing about 600 pounds each is one of the innovations. The entire assembly used to be performed on a conventional conveyor, and upon completion the units were packed in elaborate crates. A study was made to speed the assembly and packing operations, with the following procedures as a result.

Near the end of the main assembly, the engines are placed on a second conveyor line which serves for final assembly only. The units are first placed on the saddles, shown, which ride the gravity rollers (Figure 1). The engine is bolted down with an angle iron to the saddle (at one end) and moves down the line to receive such final parts as the carburetor, air cleaner, etc., followed by the hood and instrument panel. After final inspection, the unit is picked off from the gravity roller conveyor by fork truck. (The narrow conveyor was designed to be straddled by the fork.) One length of ½" steel strapping secures the other end of the engine to the saddle.

After the load is placed in the freight car by the fork truck, the saddle is nailed to the floor and each

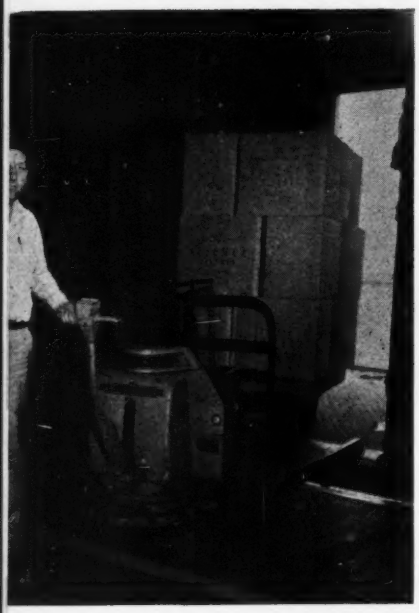
(Turn to page 47)

FIGURE 3—Parts defied palletization, but spacers did trick.

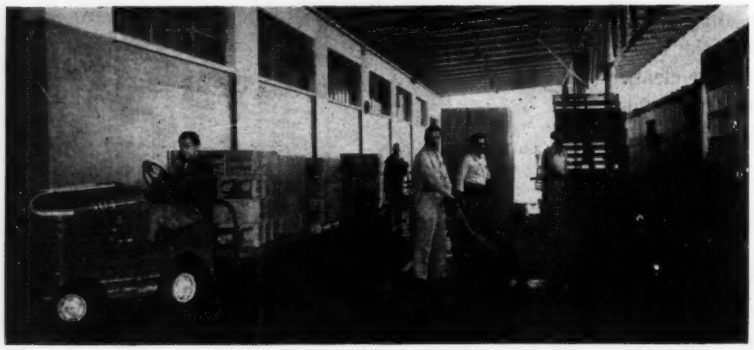
WALKIE AND RIDING TYPE TRACTORS, TRAILERS, PALLETS, FORK TRUCKS

WHOLESALE GROCERY LAYOUT FOR MINIMUM TRAVEL

The fork truck and tractor-train operation at this newly constructed one-story wholesale grocery in Los Angeles embodies advanced features of layout and handling worth knowing about.



Top: WALKIE-TYPE TRACTORS deliver trailers with empty pallets to cars and remove loaded ones. Bottom: TRAILER TRAIN make-up area on receiving dock. Note designated aisles where trains are formed.



WITHIN the recent past, Certified Grocers of California, Ltd., Los Angeles, completed construction of a modern one-story grocery warehouse. The building is divided into two main sections (plus a basement) — a reserve or storage area totaling 120,000 sq. ft. and a stock selection area with a total of approximately 65,000 sq. ft. The basement (26,000 sq. ft. under the selection area) is designed for semi-perishable goods and repack items.

Recently, an additional storage section was completed which covers another 35,000 sq. ft. This new wing is divided into two sections. The smaller, with 15,000 sq. ft., is allocated for sub-zero storage, the larger section for dry storage.

Travel Distance Minimized

Ample receiving and shipping facilities were incorporated into the main building. For receiving, truck docks accommodating 24 vehicles are located on the east side. Since some perishable goods are received by truck, an elevator was constructed adjacent to this dock to move goods to basement storage. Another elevator on the opposite side of the lower level handles material destined for the selection area. Each elevator is thus responsible for one-way travel only and waiting time is virtually eliminated.

Approximately half of the foodstuffs are received via rail cars. At the south end of the building, a three-track siding can handle 30 cars simultaneously.

Since all goods are dispatched by over-the-road carriers, a 256-ft.-long, 28-truck capacity shipping dock is located at the northwest side of the warehouse. The dock is covered for 24-hour weather-free operation. For less-than-truck loads and "call" trucks, a second shipping dock was built near the main one. Its 12-truck capacity is valuable for fast dispatching of smaller shipments and frees the main dock for full truck loads only.

Incoming goods are ordinarily dispatched to the reserve storage area, where they are stacked and fed as needed to the selection department. Fast moving items or goods in short supply are sent directly from receiving stations to

forward storage. Incoming goods from rail cars need travel only a short distance, as little as 100 ft., to the reserve areas, somewhat further if sent directly to the selection department (longer moves are in the minority). Moves from truck docks are also minimized. The layout on these pages shows the route of travel between the various departments.

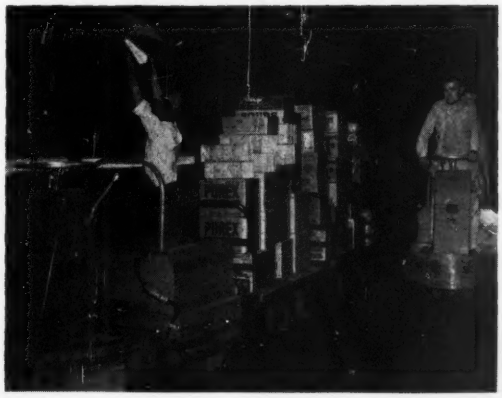
Tractor-Trailer Trains

Empty pallets which are stacked on all receiving docks are placed on 4000-lb. capacity castered trailers and moved by tractor inside the incoming carriers to receive the cased goods. Tractor-type electric walkie trucks spot the loaded trailers in lanes which are marked on the docks. Pallet loads are placed in designated lanes according to the homogeneity of the goods. At the same time they are coupled into a train which is subsequently hauled to storage by a riding-type industrial tractor.

In the warehouse, the trailers are spotted at a point nearest to where the goods are to be stacked. A fork truck picks off the palletized goods and stacks them to a maximum height of 14 ft. The coordina-

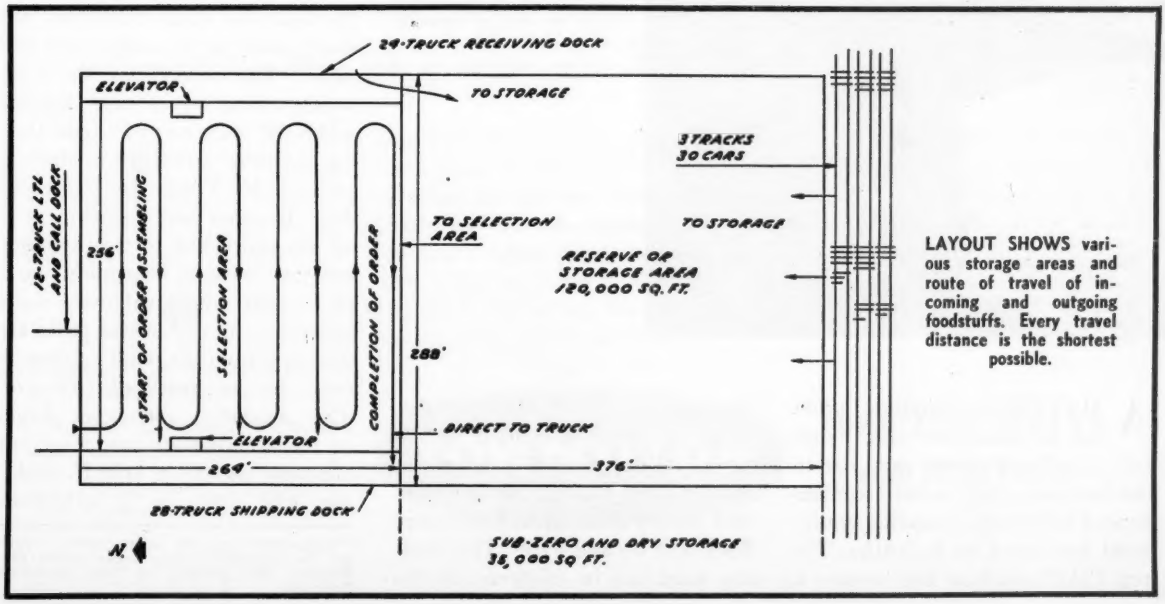
(Turn to page 50)

FORK TRUCKS pick off pallets from trailer train and stack them to a height of 14 ft. ▶



TRACTORS AND TRAILERS are used by order pickers in selection area for making up orders. ◀

COVERED SHIPPING DOCK permits 24-hour operation. Trailers are spotted in designated areas. ▶



LAYOUT SHOWS various storage areas and route of travel of incoming and outgoing foodstuffs. Every travel distance is the shortest possible.

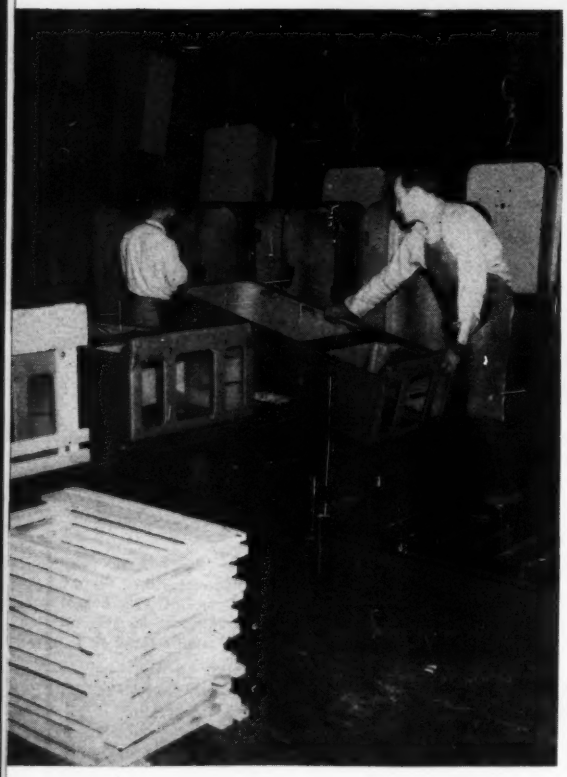
Synchronized Conveyor Assembly

This synchronized conveyor assembly is timed for a peak production of one Coca-Cola dispenser per minute. Engineered handling methods are an important part of production.*

Overhead chain, gravity, belt and slat conveyors; castered work carriers.

By R. J. ALTON

Plant Manager
The Vendo Company, Kansas City, Missouri



OPERATOR TILTING cabinet against rubber-covered roller at start of assembly operation.

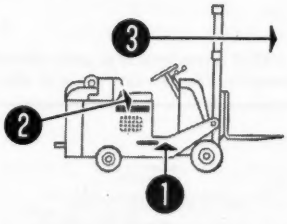
A MATERIAL handling problem in connection with the retail sale of soft drinks gave rise to our business, which is the manufacture of refrigerated vending equipment for Coca-Cola in bottles. The red Coke* machine has become a familiar fixture in factories, offices, filling stations and other public places. Prior to 1937, when we started operation, soft drinks were sold mostly from open-top coolers filled with ice and water. The vending machines in existence at the time employed the principle of moving the bottles to the vending opening. The problem of corrosion and complicated mechanisms rendered these dispensers more or less impractical. The Vendo Company brought a new principle to the industry: instead of moving a number of bottles through ice and water, our device simply moved the vending opening (a disc with a hole in it) to the next bottle to be dispensed. Thus, in solving a point of sale material handling problem, a new industry was born.

Synchronized Conveyor Assembly

Final assembly of these vending machines, of which there are four basic sizes, is the subject of this paper. The largest unit, the V-83, weighs about 400 pounds finished and is 32″ wide and 65″ high. During the peak season we produce in excess of 400 Vendos per eight-hour day. In other words, the plant is set up and timed to turn out one every 60 seconds. Assembly starts at a point where cabinets, doors and other pressed metal parts are delivered from the painting department by an overhead conveyor. The assembly conveyors begin in the approximate center of our one-story 300 ft. x 1100 ft. building, and move in a southward

*"Coca-Cola" and its abbreviation "Coke" are the registered trade-marks which distinguish the product of The Coca-Cola Company.

every handling job is easier with TOWMOTOR MH!



1-LOW STEP-UP 2-WIDE SEAT
3-GOOD VISIBILITY

—Towmotor Efficiency Features

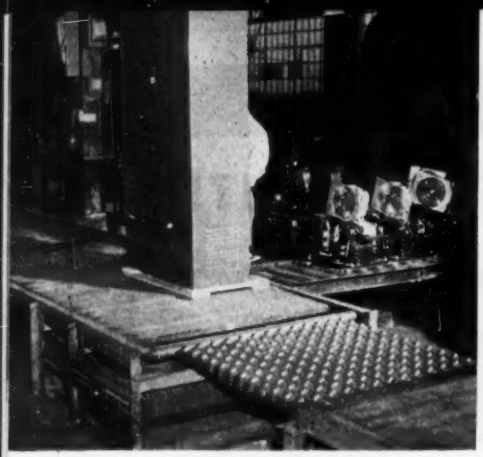
Your driver is seated at his important task . . . with plenty of leg room, seat room and "see" room to do a more efficient, faster, better job.

Another development pioneered by Towmotor is the exclusive design which permits greater freedom and ease of operation for the fork lift truck operator—increasing his alertness and efficiency in the safe handling of loads up to 15,000 lbs. Compare Towmotor with any other lift truck and you will see why Towmotor's outstanding features make every **M**ass **H**andling job easier, faster, safer. Write for a copy of the "Operators Guide." Towmotor Corporation, Div. 8, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

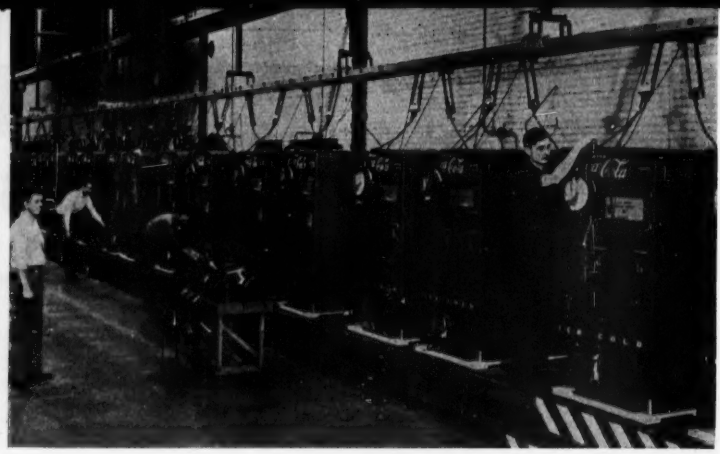
TOWMOTOR
THE ONE-MAN-GANG

FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION



BALL TRANSFER TABLE between conveyor sections. Compressors are fed in on the gravity rollers.



DUAL BUS DUCTS over 280 ft. long compressor testing line. Dual line solved serious problem.

direction to the shipping department at the extreme end of the building. This layout was arranged to permit the convenient locating of the other operations which are stamping, welding, machining and plating.

The take-off station from the overhead pressed metal conveyor is alongside a roller conveyor which is at floor level. The cabinets are here placed upright to receive the mastic sealer and wood breaker-strips (the latter insulate the liner from the cabinet). The other parts delivered by this conveyor are dispatched in racks and other types of castered load carriers from the take-off point to sub-assembly stations along the line.

The cabinets and doors start on two parallel assembly lines, which are synchronized so that each door and cabinet arrives at the door-hang station simultaneously. Both conveyors operate at six FPM although a variable speed drive permits different production rates if necessary. To provide the proper working height for the operators, the carrying surface of the cabinet line is 20" above the floor, and the door line travels at about 30" above the floor.

Planning Conveyor Length

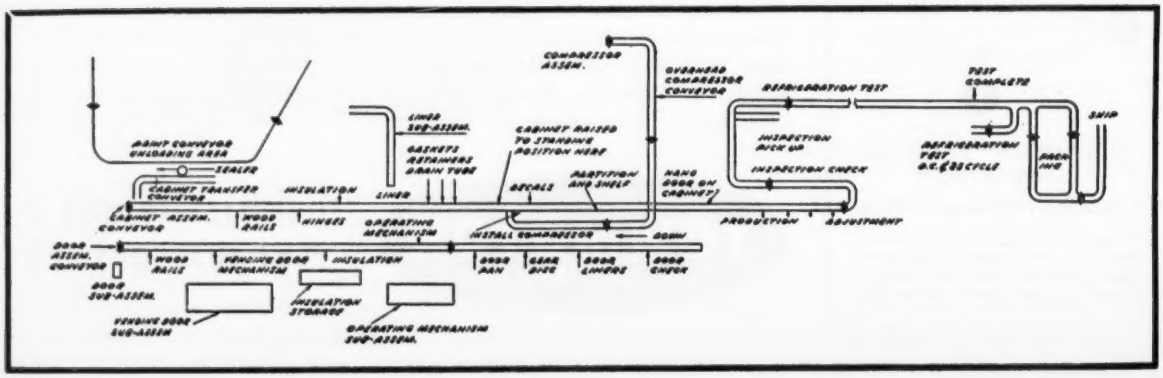
The coolers come off the paint conveyor in a vertical position and must be laid down horizontally on the assembly conveyor for ease of installation of internal parts. A unique method of laying down the cabinet has been worked out by means of a rubber covered roller attached to the outside frame of the transverse line. A slight hand pressure against the top of the cooler lays it down on this conveyor, the rubber covered roller acting as a pivot.

While the cabinet is in a horizontal position on the transverse line, a crate base is bolted to the bottom which serves to space its lower end above the wood slats. The other end of the cabinet is cushioned on a rubber-padded spacer. The wooden slats of the door assembly conveyor are equipped with felt-padded jigs, which both locate the parts and protect the finish.

Small parts in tote boxes and stacking type bins are delivered at night for a full day's supply. This arrangement prevents interference

(Turn to page 51)

FLOW SHEET shows principal work stations along assembly line for cabinets and doors.



Crawler—Mounted crane with clamshell attachment

THIS CRAWLER-MOUNTED CRANE feeds the entire asphalt plant without traveling from strategically placed stockpiles.

A YARD CRANE
Feeds the Entire Plant

By BILLY SMITH
Superintendent
Horvitz Co., Cleveland

At this asphalt plant, one crawler-mounted crane feeds material to manufacturing. Other duties of the machine include unloading g o n d o l a cars, moving stockpiles, sump-hole cleaning and occasional maintenance work.

THE Horvitz Co., one of Ohio's largest highway construction firms, produces all asphalt for use in its many asphalt paving operations. Since the paving season is little more than five months long (because of seasonal conditions and state limitations), it is necessary to produce a maximum amount of asphalt in a concentrated period.

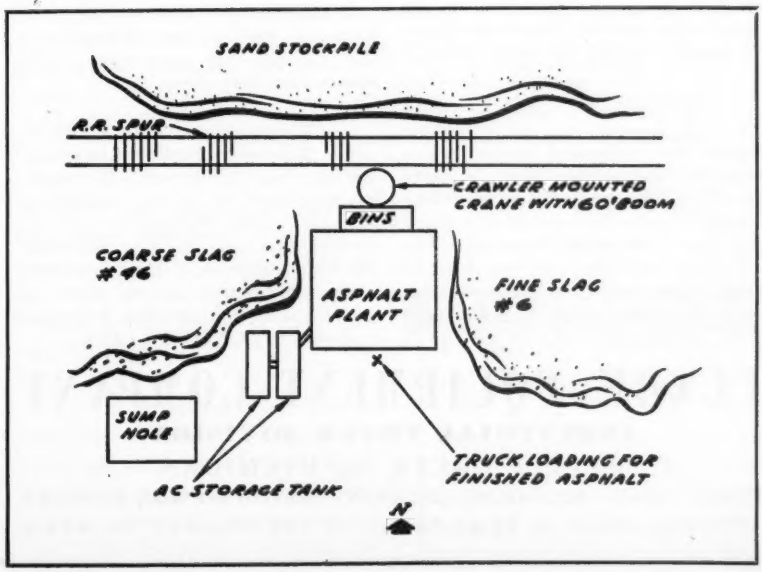
The fast handling of the asphalt ingredients—slag, sand and asphalt cement (referred to as AC)—is vital to high-volume output. We employ only one two-yard capacity crawler-mounted crane, equipped with a 1-½ yd. clamshell, to handle all normal yard activities. During the off-season, the crane performs other tasks, which are also described here. The layout of stockpiles permits the crane to pick up sand and slag and feed these materials to processing bins without travel.

Slag Handling

Different types of asphalt mixtures are required, depending on whether it is to make up the bottom (or binder) section of the road, or the top surface. Hence both coarse and fine slag are stockpiled (binder takes a different size than surface material).

The coarse slag is made up of two sizes (four and six—the lower the number, the larger the particle); the fine slag consists of vari-

FLOW SHEET of slag and sand stockpiles and position of crane. Note the relation of bins and take-away point for trucks.



Greater Service to Fork-Truck Users

Greater Opportunities for Men Who Sell Them—

Clark Dealer Plan Achieves **Both**

WITH sales of its fork-lift trucks and industrial towing tractors exceeding all expectations, and with its position of production and engineering leadership firmly rooted in rich, productive soil, Clark Equipment Company, in its 30th year as a builder of materials-handling machines, has found it desirable to establish a nation-wide organization of independent franchised dealers as exclusive distributors of the products of its Industrial Truck Division.

THIS is indeed a far cry from 1939 when the entire output of the Industrial Truck Division was sold with ease by a handful of men!

TODAY'S volume is twenty times that of 1939; and the Company's stature—financial and engineering—is more than twenty times as great as in 1939. A considerable number of the '39 machines are in daily service, and many older machines are in regular operation after 20 and 25 years. The conviction is natural that 30 years hence many '49 machines will still be "on the job" alongside the new output of 1979. There will be no "orphans" bearing the name "Clark."

TO KEEP PACE with increasing demands, and to deliver the broad and competent service which Industry expects from Clark, the Company has chosen this plan of selling through independent dealers as a sound and logical evolution. Until the middle of 1948, approximately one-third of Clark's Industrial Truck Division representatives were on an independent dealer basis. It is expected that by the end of 1949 the nation-wide dealer organization will be complete.

HEADING up the dealerships or actively participating in them are key men of Clark's erstwhile factory-branch sales offices—factory-trained men, tested and proved as capable materials-handling counselors. These men share with Clark management the conviction that they can deliver, under the new plan, a broader and more valuable service to their customers and to all users of mechanized materials-handling; that they face broader, deeper vistas of opportunities which ambitious men so earnestly desire—opportunities for independence, for building greater earnings by their own efforts, for achieving prestige and leadership in their communities.

ANOTHER influence which furthered the plan is the fact that Clark management historically has been engineers and manufacturers. By decentralizing marketing activities, Clark can intensify its emphasis on development of better materials-handling machines and methods—to the end that Clark products shall achieve even higher excellence at lower cost, shall become still more valuable to industrial users and to the dealers who serve them.

THROUGH your Clark dealer, all the advantages of Clark engineering, integrated production and matchless experience are quickly available to you. He is fully qualified to make an unbiased appraisal of your materials-handling operations, and to recommend the type of machine that will serve you most efficiently at lowest cost. It's "good business" to CONSULT CLARK.

CLARK EQUIPMENT COMPANY

INDUSTRIAL TRUCK DIVISION

BATTLE CREEK 13, MICHIGAN

OTHER PLANTS—BUCHANAN • JACKSON • BERRIEN SPRINGS, MICHIGAN

REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

AUTHORIZED CLARK DEALERS

ALABAMA: BIRMINGHAM
*M-H EQUIPMENT COMPANY
845 LOMB AVENUE

ARIZONA: PHOENIX
ROBERT H. BRAUN COMPANY
743 GRAND AVENUE

ARKANSAS: LITTLE ROCK
FRED J. VANDEMARK COMPANY
209 EAST MARKAM STREET

CALIFORNIA: FRESNO 1
ROBERT H. BRAUN COMPANY
505 MASON BUILDING

LOS ANGELES 23
*ROBERT H. BRAUN COMPANY
3008 EAST OLYMPIC BLVD.

OAKLAND 3
*GLEN L. CODMAN COMPANY
10521 PEARMAIN STREET

SAN DIEGO
ROBERT H. BRAUN COMPANY
3872 FIFTH AVENUE

STOCKTON
GLEN L. CODMAN COMPANY
409 BELDING BUILDING

COLORADO: DENVER 2
*J. N. MEADE
420 U. S. NATIONAL BANK
Service: FORK LIFT TRUCK SERVICE
2855 WEST 8TH AVENUE

CONNECTICUT: NEW HAVEN
*C. E. REUTTER CORPORATION
66 AMITY ROAD

FLORIDA: TAMPA
CLARK EQUIPMENT COMPANY
1145 ELLAMAE STREET

ILLINOIS: CHICAGO 4
*MODERN HANDLING EQUIP., INC.
310 SOUTH MICHIGAN AVENUE
(***Service: Cook County***)
LIFT TRUCK SERVICE COMPANY
6919 SOUTH HALSTED STREET

INDIANA: INDIANAPOLIS 5
*W. A. MARSCHKE & SONS
1121 E. 46TH STREET

SOUTH BEND 14
*MATERIALS HANDLING EQUIP. CO. OF SOUTH BEND, IND.
2625 SOUTH MICHIGAN STREET

IOWA: DAVENPORT
*BIG RIVER EQUIPMENT CO.
1344 WEST THIRD STREET

DES MOINES
*BIG RIVER EQUIPMENT CO.
914 GRAND AVENUE, ROOM 255

KANSAS: KANSAS CITY
Sales and Service:
(SEE KANSAS CITY, MISSOURI)

LOUISIANA: NEW ORLEANS
T. G. FRAZEE
910 CARONDELET BLDG.

MAINE: PORTLAND
BRODIE INDUSTRIAL TRUCKS, INC.
(CONTACT MALDEN, MASS.)

MARYLAND: BALTIMORE
FALLSWAY SPRING & EQUIPMENT CO.
CORNER FALLSWAY & LEXINGTON

MASSACHUSETTS: BOSTON (MALDEN 48)
*BRODIE INDUSTRIAL TRUCKS, INC.
50 COMMERCIAL STREET, MALDEN 48

MICHIGAN: BATTLE CREEK
CLARK EQUIPMENT COMPANY
INDUSTRIAL TRUCK DIV. PLANT

DETROIT 2
*CLARK EQUIPMENT COMPANY
6520 CASS AVENUE
Service: INDUSTRIAL TRUCK SERVICE, INC.
8815 HARPER AVENUE

MINNESOTA: MINNEAPOLIS 2
*MATERIAL HANDLING ENGINEERS
225 SOUTH 5TH STREET, ROOM 201
Service: SMITH-DUNN COMPANY, INC.
2301 UNIVERSITY AVENUE, S. E.

MISSOURI: KANSAS CITY 6
*CLARK EQUIPMENT COMPANY
1009 BALTIMORE AVENUE
Service:
LIFT TRUCK SERVICE & SUPPLY
NORTHWEST 15TH AND McGEE STREETS

ST. LOUIS 8
*MATERIALS HANDLING EQUIPMENT CORP.
3820 WASHINGTON BLVD.
Service:
FORK LIFT TRUCK SERVICE CO.
511 CHANNING STREET

AUTHORIZED CLARK DEALERS

NEW JERSEY: JERSEY CITY
*JERSEY INDUSTRIAL TRUCKS, INC.
34 EXCHANGE PLACE
Service:
BOND INDUSTRIAL MAINTENANCE CO.
51 CLARKSON STREET AT GREENWICH
NEW YORK 14, NEW YORK

NEW YORK: BUFFALO
*BRODIE INDUSTRIAL TRUCKS INC.
1450 MICHIGAN AVENUE
NEW YORK 6
*BOND INDUSTRIAL EQUIPMENT CO.
165 BROADWAY, ROOM 2200 (OFFICE)
Service and Display Room:
51 CLARKSON STREET AT GREENWICH
NEW YORK 14—also
289 BOND STREET, BROOKLYN 31
SYRACUSE
BRODIE INDUSTRIAL TRUCKS INC.
712 STATE TOWER BLDG.
ALBANY (WATERVLIET)
*INDUSTRIAL TRUCK SALES, INC.
BROADWAY AT 25TH, WATERVLIET

NORTH CAROLINA: GREENSBORO
Service Outlet only:
INDUSTRIAL TRUCK SERVICE CORP.
629 SOUTH SPRING STREET

OHIO: CINCINNATI
ROBERT C. YOUNG, P. O. BOX 96
CLEVELAND
CLARK EQUIPMENT COMPANY
522 ROCKEFELLER BLDG.
TOLEDO 10
PERCIVAL L. REYNOLDS, 2558 FULTON STREET

OKLAHOMA: TULSA
ARST EQUIPMENT COMPANY
34 NORTH MADISON

OREGON: EUGENE
PRESTON FALLER COMPANY
891 TAYLOR STREET
PORTLAND 5
PRESTON FALLER COMPANY
1220 S. W. MORRISON STREET

PENNSYLVANIA: PHILADELPHIA 8
*CLARK EQUIPMENT COMPANY
401 NORTH BROAD STREET
Service:
PHILADELPHIA ENGINE REBUILDERS, INC.
330 WEST QUEENS LANE
PITTSBURGH
*MATERIAL HANDLING INCORPORATED
319 THIRD AVENUE

SOUTH DAKOTA: SIOUX FALLS
CENTURY EQUIPMENT & SUPPLY CO.
22 WEST 7TH STREET

TENNESSEE: MEMPHIS 3
*FRED J. VANDEMARK COMPANY
1110 UNION AVENUE

TEXAS: DALLAS
*T. G. FRAZEE
1012 FIRST NATIONAL BANK BLDG.
Service:
TRUCK EQUIPMENT COMPANY
2409 COMMERCE STREET
HOUSTON
*T. G. FRAZEE, 810 PETROLEUM BLDG.

UTAH: SALT LAKE CITY
A. J. ISAACSEN, JR.
45 SOUTH 3RD WEST STREET

VIRGINIA: NORFOLK
*McLEAN-SHAND, INC.
955 WEST 21ST STREET

WASHINGTON: SEATTLE 1
*PRESTON FALLER COMPANY
1921 MINOR AVENUE
SPOKANE 9
PRESTON FALLER COMPANY
EAST 41 GRAY AVENUE

WISCONSIN: MILWAUKEE 2
*CLARK EQUIPMENT COMPANY
759 NORTH MILWAUKEE AVENUE, ROOM 623
Service: LIFT TRUCK SERVICE CO.
5710 WEST NATIONAL AVENUE

DISTRICT OF COLUMBIA: WASHINGTON
CLARK EQUIPMENT COMPANY
927 15TH STREET N. W.

TERRITORY OF HAWAII: HONOLULU
*PRESSED STEEL CAR COMPANY
538 REED LANE, P. O. BOX 300

*Sales and Service.

For Names and Addresses of Export Distributors, write to: Export Division, Clark Equipment Co., Battle Creek Mich., U.S.A.

ations of number six size. It is therefore important that segregation of the variously sized particles be prevented in feeding these mixed bulk materials to manufacturing. The clamshell is well suited to this selective feeding requirement. It selects the required type of slag (without travel) and the clamshell picks up the carefully mixed ingredients from each pile in the desired proportions.

Slag is stockpiled throughout the winter months because it is in short supply. At the start of the manufacturing season we have on hand approximately 50,000 tons of this material. Sand is brought in during the summer, and we usually maintain a stock of about 30,000 tons.

Slag arrives in semi-trailer dumptrucks in 18-ton loads, and sand in similar highway carriers and gondola cars. AC is received in tank cars or special trucks designed for transporting liquids and is pumped from the carriers into storage tanks.

Layout for Fast Handling

The accompanying layout of part of the six-acre yard shows the position of the various materials in relation to the processing bins. Sand stockpiles are located at the north, with a paralleling railroad spur for incoming gondolas. Fifty ft. to one side is the coarse slag, with the stockpile for fine slag a short distance to the east. All piles are approximately 150 to 200 ft. long and extend a similar distance in depth.

The strategic position of the crane is apparent from the flow sheet. The layout of the several stockpiles was designed for economical crane operation. The equipment is spotted not more than 50 ft. from any of the three piles, and its 60-ft. boom is therefore ample for stationary feeding of the bins.

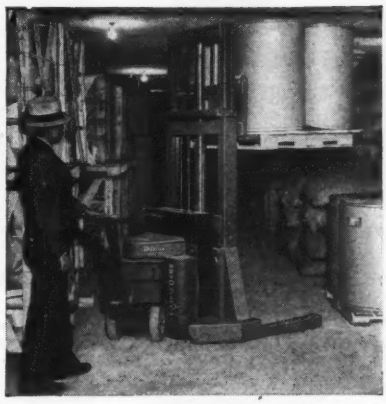
When it unloads gondola cars of sand, its position near the track requires a minimum of travel. Such incoming material is stockpiled at a point closest to the processing bins. This arrangement reduces the

STACK IN SIX FOOT AISLES

with the NEW

GO-GETTER

Telescopic Straddle Type Walk-Along Battery Liftruck



Pile it HIGH at LOW cost with push button ease! Pile it faster; pile it safely—the GO-GETTER way. It's so easy with all controls at end of handle. Utilize that valuable space near the ceiling in warehouse, stockroom or loft.

EASY DOES IT!

Save more *floor* space, also, with this latest GO-GETTER which handles 48" x 48" pallets from narrow six-foot aisles, a tremendous advantage.

Easy on the Check Book, Too!

You'll be delighted with GO-GETTER'S low first cost, low operating expense, dependable service, and most of all the everyday savings it will bring you.

SEVEN GO-GETTER TYPES COVER ALL REQUIREMENTS

Low Lift Platform Skid
Low Lift Pallet
High Lift Straddle Fork
High Lift Platform Skid
High Lift Counter-balanced Fork
Tractor for Towing and Pushing
Universal 13" Platform Lift

Send us details of YOUR needs and let us quote you.

Made by the manufacturers of the famous REVOLVATOR PORTABLE ELEVATORS and RED GIANT HAND LIFTRUCKS.

Established 1904
Use Coupon

REVOLVATOR CO.

8739 Tonnele Ave. North Bergen N. J.

Kindly send full information on GO-GETTER Power Liftrucks . . . Red Giant Hand Liftrucks . . . REVOLVATOR Portable Elevators . . .

NAME .....

POSITION .....

COMPANY .....

ADDRESS .....

HELPING HAND
for Materials Handlers

APPLETON
REELITE
TYPE "YS"

Takes up, pays out Conductor Cable on Traveling Hoists

No Exposed Current Collectors, Trolleys or Wires
Rating: 15 Amperes—550 Volts, A. C.; 250 Volts, D. C.

This rugged, automatic Appleton Reelite is designed especially to speed up handling and production. Supplies uninterrupted power to traveling hoists with speed, safety, economy.

Equipped with 45 feet of cord, the Type "YS" Reelite mounted at a mid-point, supplies continuous power to a hoist traveling 90 feet. Finest steel clocksprings keep cable under proper tension at all times, preventing kinks, dragging, obstacle interference. Power breakdowns, personal and equipment hazards are eliminated.

Action of the Appleton "YS" Reelite is smooth and constant. Turning on a nearly frictionless swivel base, it pays out cord in either direction to follow curves in the track. Bearings are oilless. Rings and brushes are readily accessible should service ever become necessary. Equipped with Neoprene jacketed cable for longest service.

Ask your jobber about the complete line of Appleton Reelites today.

Sold Through Electrical Wholesalers

APPLETON ELECTRIC COMPANY
1728 WELLINGTON AVE. • CHICAGO 13, ILL.
Branch Offices and Resident Representatives in all Principal Markets

SEND FOR 50-Page BULLETIN NO. 504, giving complete details on Appleton Constant Duty Reelites, Portable Reelites and Reelites especially built for air and fluid lines. Or see Sweet's File, page 2a/15.

APPLETON
CONDUIT FITTINGS • LIGHTING EQUIPMENT • OUTLET AND SWITCH BOXES
EXPLOSION-PROOF FITTINGS • REELITES

number of times that any aggregate has to be moved up from the far end of the pile in relation to the point of use.

Converging Flow

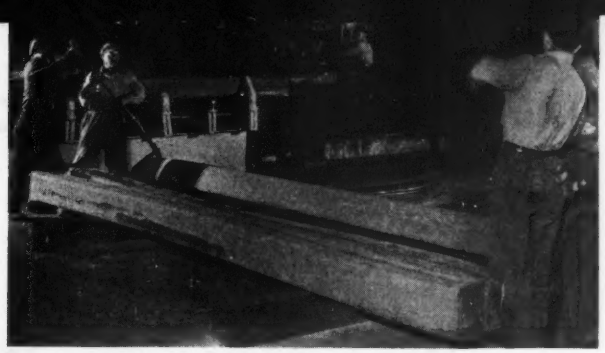
The directional flow of the sand is from north to south, the course slag from west to east, the fine slag from east to west, all converging on the central crane location. Since the manufacturing needs do not allow the crane to be absent for more than 15 minutes from the feeding station, it is used at night for moving the slag and sand into easy handling distance for the next day's activities. On occasions, when great amounts of materials must be moved, a ¾ yard tire-mounted crane is brought from one of the construction jobs to aid in the work. Sometimes, this smaller model works in conjunction with dump trucks (the crane deposits the material in the truck which takes it to that section of the piles closest to the bins).

During production, dust is given off as waste. The dust is washed and returned to settling tanks near the plant. The water drains off, and the remaining sludge is removed periodically by the crane.

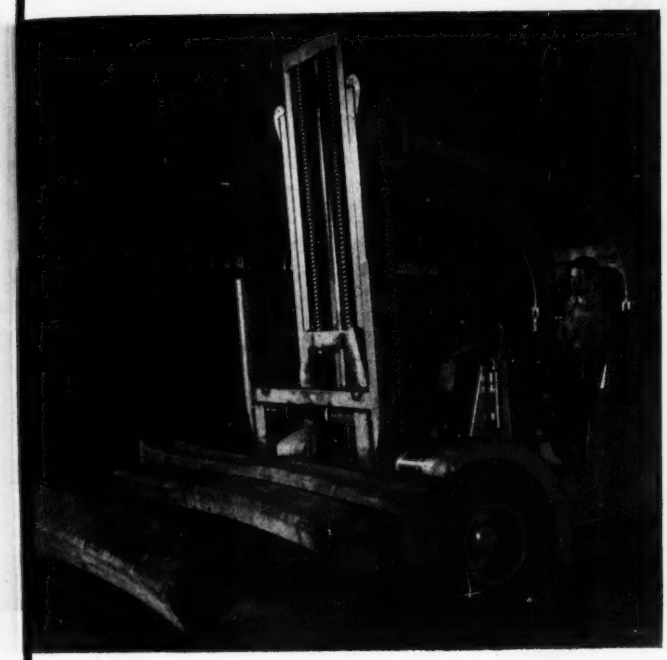
During winter, incoming truckloads of slag are dumped near the spot where the stockpile is to be made. The crawler-mounted crane deposits the slag in successive three-foot-deep layers, which prevents segregation of the differently sized particles during the storage period.

Another off-season task performed by the crane is that of plant maintenance. Such jobs as replacement and repair of heavy, hard-to-manage production machinery is easily accomplished by removing the clamshell and adding suitable accessories.

This one piece of equipment is the answer to fast, efficient bulk handling, which, because of the nature of the material and the exacting production requirements, normally presents a difficult handling problem.



THE OLD WAY—THE HARD WAY. Four men turning blooms with hand tongs. Men are no longer burden-bearers, have been upgraded to production jobs. Lifting magnet, rear, loads blooms on inspection bed.



THE NEW WAY IS EASY. Fork points turn bloom quarter turn as operator manipulates the hoisting control.

New Application of Fork Trucks . . .

NOW—TURN BLOOMS WITHOUT TONGS

IN THE bloom conditioning building of the Steel and Tube Division, Timken Roller Bearing Co., Canton, thousands of tons of blooms are inspected regularly on a 24-hour daily basis. After chipping, it is necessary to inspect the blooms for surface seams. (The seams would widen and extend through the steel in further rolling operations.) Every bloom must be turned so that each of its four sides is on top for the inspection. The larger blooms are 11″x13″, and the units range in length from 8′ to 18′, weighing approximately up to 4500 lb. each. The job used to be done by operators manipulating tongs. It was not easy work.

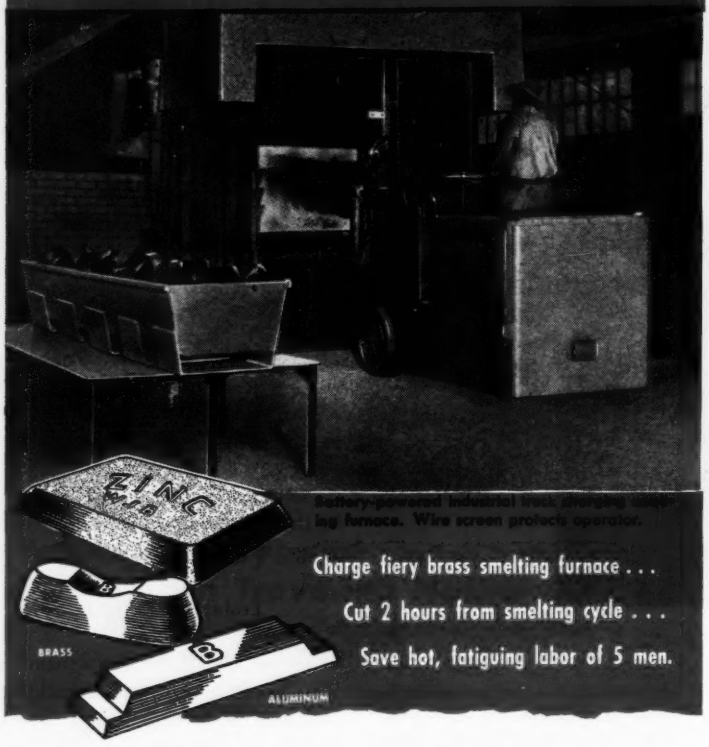
Evolution Is Gradual

Today the turning operation in the Timken bloom conditioning building is accomplished by an 18,000 lb. capacity fork lift truck using standard 48″ forks. The new method was adopted about four months ago, during which time it has been thoroughly tested and found satisfactory in every respect.

The step from the job that was formerly performed by men with

IN MANY a steel man's mind the term "material handling" still evokes a picture of a flanged wheel on a steel rail—the traditional steel handling method. But in recent years this vast industry, made complex by highly specialized products and functions, has broken with the old-time tradition by adopting rubber-tired handling tools. The new equipment and techniques have resulted in added flexibility and thus aided production through better flow engineering. The track-bound transfer car is being supplemented by tire-mounted machines whose greater operational range is netting cost reductions through better space and manpower utilization. The application of ram trucks to high-speed strip steel mills was described in the issue for December 1947, and the adoption of straddle trucks in a bar and tube mill in FLOW for August and September 1948. Herewith FLOW presents another innovation—the first of its kind—a pneumatic-tired fork lift truck which is used as a combination bloom turning and transfer machine. This equipment applies to steel mills where intermediate processing involves blooms, or slabs of medium size.—Ed.

ANOTHER TOUGH HAZARD PROBLEM
SOLVED BY
Battery-Powered
TRUCKS
AT W. J. BULLOCK, INC.



Battery-powered industrial truck charges charging furnace. Wire screen protects operator.

Charge fiery brass smelting furnace . . .
Cut 2 hours from smelting cycle . . .
Save hot, fatiguing labor of 5 men.

An electric industrial truck is used as a furnace charger at the W. J. Bullock smelting and refining plant in Fairfield, Alabama. Flames leap out furnace door making a battery-powered truck mandatory. A ten-foot long ram-attachment inserts ton loads of scrap into furnace . . . a rotating head spills load directly into furnace. Labor of 5 men is saved, releasing them for other work. 2 hours cut from smelting cycle. Heat loss during loading greatly reduced.

A fleet of sturdy battery-powered trucks speeds all handling in the Bullock plant. Trucks work 24 hours a day, seven days a week with practically no down time. Move bales, drums, slabs, pigs, ingots into or out of boxcars, production and storage. Provide fireproof motive power with utmost dependability for round-the-clock handling throughout all operations.

Another example of electric truck safety and sturdiness helping industry—while providing material handling *at lowest cost per unit moved.* This criterion, rather than initial investment, explains why so many industries prefer battery-powered trucks!

THE ELECTRIC INDUSTRIAL TRUCK ASSOCIATION
29-28L Forty-first Avenue, Long Island City 1, N. Y.

tongs to the fork truck operation was not a direct one. A piece of permanent machinery was originally proposed for this work; the fork lift truck method was tried on an experimental basis after considerable discussion. Usage proved the feasibility of the experiment.

The cost of the fork lift truck was only a small part of the capital investment proposed for the permanent bloom turning machine. The use of such a machine, incidentally, would have added to the load of the traveling bridge crane serving this bay; it would have been dependent on the crane for both loading and unloading of its table. The truck not only turns the blooms but also transports them to an adjoining building *as they are processed.*

The statement "as they are processed" is of special significance in this connection. With the previous tong and transfer car method, the inspected blooms used to be stockpiled in the conditioning area until the crane in the adjoining building could unload the transfer car, which had a capacity of 100 tons. When the empty car was returned to the conditioning room, the steel had to be rehandled to the empty vehicle. (Space in this building permitted the use of only one car.)

Since the fork truck removes each lift as it is processed, three advantages are gained. 1. Rehandling is avoided. 2. A free flow of material is accomplished. 3. A large piling space does not have to be maintained for inspected blooms awaiting transfer to the next operation. (The truck uses part of this space.) "As they are processed" thus stands for a methods improvement with a triple benefit.

Turning Technique Is Simple

As the blooms come from the chipping machines they are placed on the inspection bed by a crane using a lifting magnet. They are handled in multiple units of three or four, depending on their size. To turn the blooms, the fork truck

Industrial EXPERIENCE

As manufacturers of hundreds of steel tanks and other allied products since 1908, the Chattanooga Boiler and Tank Company has accumulated a wealth of industrial application experience.

Our services consist of designing, fabricating and erecting storage and dry-materials handling equipment for chemical and processing industries.

Whether you need pressure vessels, gravity bins, hoppers, kettles, pans or pipe, the skilled workmanship and efficient production supervision associated with Southland Steel Products, assure you dependable operation and economical maintenance.

CHATTANOOGA BOILER and TANK CO.

Chattanooga, Tenn.

OVER 40 YEARS OF SERVICE STEEL SOUTHLAND PRODUCTS **TO AMERICAN INDUSTRY**

we love this kind of an executive

He isn't interested in broad, vague claims. Facts and figures make up his mind. He's easy for us to talk to because our story ties in with *cutting costs* of his packing and shipping, with increasing his production, with stepping up his profits.

We believe *every* user of shipping containers will today, more than ever before, find our story of interest—*to his interests!*

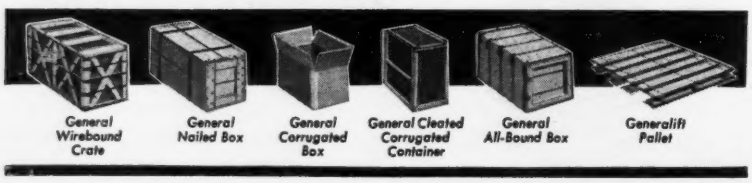
Write us for details—write *today.*

Our two modern, fully equipped, expertly staffed Designing and Testing Laboratories are available for the improved packing of your products. Get in touch with us with regard to this free service.

General ★★★★★ **BOX COMPANY**
...engineered shipping containers

GENERAL OFFICES: 60 West Illinois Street, Chicago 10.
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Natchez.
Continental Box Company, Inc.: Houston, Dallas.

Send for your free copy of "THE GENERAL BOX"



picks up the entire lift except the one nearest the tapering ends of the fork. It backs up sufficiently so that the fork extends slightly less than halfway across the underside of this bloom. The fork is raised a few inches and the bloom is thus turned one quarter turn. The fork is then lowered to deposit the second bloom, whereupon the truck is backed up slightly to turn No. 2 with the points of the fork by raising the carriage. This procedure is repeated until all blooms in the lift have been turned a quarter turn.

The inspector examines the top side of each unit, whereupon the truck picks up the lift and repeats the procedure as described, starting with the bloom nearest the fork points and working toward the heel until all four sides have been inspected. After some training an operator becomes adept at maneuvering the vehicle so that the fork points are spotted properly for turning at the first pass. (In case any rechipping is necessary, the overhead crane transports the blooms to the chipping machines.)

The lift truck picks up the inspected blooms and transports them to the adjacent building, where an overhead crane piles them for the next process. The distance of the haul averages about 100 ft.

Thus the lift truck takes the place of a bloom turning machine and a heavy-duty motorized transfer car, doing the job at a fraction of the investment cost. And because the vehicle is self-loading and self-unloading, it makes possible a free flow of material (without the former intermediate piling and rehandling) that is found desirable by Timken operating and engineering executives.

The price of the new 1949-50 Flow Directory is $5.00 per copy. Order yours today. Write Flow Directory, 1240 Ontario St., Cleveland, Ohio.

Index to Flow Articles

For the First Six Months of 1949

This index covers all FLOW articles from January through June, 1949, inclusive. For the convenience of readers, articles are listed under two headings in all cases where the type of product is equally important as the type of operation.

AIR CIRCUITS

Air Circuits For Conveyor Operation. February, p. 22.

ASSEMBLY AND FABRICATION OPERATIONS (METALS)

You, Too, Can Clean Up With Modern Methods. January, p. 43.

This "Trip" Turns Truck Frames Right Side Up. January, p. 48.

Sea Horses Ride On Castered Horses. January, p. 66.

Study Of The Load Unit Method—At John Deere Planter Works. Part I, May, p. 16.

Study Of The Load Unit Method—At John Deere Planter Works. Part II, June, p. 22.

Three Benefits From A Modernized Handling Program. June, p. 30.

BULK HANDLING (CONTINUOUS CONVEYOR FLOW)

A Malt House Is A Continuous Conveying System. February, p. 28.

A Layout For Cinder Crushing. April, p. 22.

CLAY PRODUCTS

Old Kilns—Modern Methods. February, p. 25.

Ceramic Insulator Packing—For Fast Handling With Least Breakage. April, p. 66.

COMMUNICATIONS

Communications Cut Costs. June, p. 40.

COST ANALYSIS PAPERS

$2400 Investment Returns $8300. March, p. 24.

One Sheet At A Time—The Costly Way. April, p. 34.

Communications Cut Costs. June, p. 40.

EQUIPMENT SURVEY

How American Industry Uses Wire Rope Slings. February, p. 40.

FOOD PRODUCTS

(See also Packaging Merchanics Section)

Bananas Ride Monorail To Packaging. February, p. 60.

$2400 Investment Returns $8300. March, p. 24. (Cocoa and Chocolate Products.)

High-Volume Production In Sugar Packaging. March, p. 70.

Hydraulic Tailgates With Roller Beds. April, p. 24.

Candy Processing And Packaging. April, p. 64.

Prepackaging Fresh Vegetables. May, p. 37.

Prepackaging Tomatoes In Trays. June, p. 65.

FORGE OPERATION

Heavy Forge Job—Effortlessly Done. June, p. 24.

GENERAL (ARTICLES OF TOPICAL AND SPECIAL INTEREST)

Pre-Exposition Listing of Exhibitors at Third Material Handling Show in Philadelphia. January, pp. 26, 28, 36. Listings are by booth numbers, products and personnel.

Announcement Of 1948 FLOW Cost Analysis Contest Winners. February, p. 24.

The Third Material Handling Exposition Is The Greatest So Far. March, p. 27.

Index To 1948 FLOW Articles. March, p. 32.

Another Good Year For The Institute. March, p. 52.

Minimum Standard Specifications For Warehouse Or Returnable Pallets. March, p. 57.

Floor Load Capacity Rating And Its Relation To Industrial Power Trucks. April, p. 25.

Conveyor Railroad. April, p. 28.

AMA's 18th Packaging Exposition and Conference. May, p. 32.

GLASS PRODUCTS

High-Volume Glass Packing—With Care. June, p. 54.

INNOVATION IN EQUIPMENT DESIGN

Hairpin Hook With Built-In Hoist. May, p. 61.

Grab With Powered Turntable. June, p. 23.

MAINTENANCE ASPECTS

Maintenance—Whose Job? March, p. 38. (The first of three articles appearing on alternate months.)

Maintenance—The Job. May, p. 26.

MANAGEMENT

How To Sell Management On Material Handling. February, p. 26.

ORDER ASSEMBLY, WAREHOUSING, SHIPPING

(See also Packaging Mechanics Section)

How Hibbard, Spencer, Bartlett & Co. Ships 15,000,000 Pounds Of Hardware A Month. March, p. 44.

"Supermarket" Packaging Of Replacement Parts. March, p. 64.

Hydraulic Tailgates With Roller Beds. April, p. 25.

Hairpin Hook With Built-In Hoist. May, p. 61.

PACKAGING MECHANICS SECTION

Pallet Loader In A Filling Line. January, p. 96.

Automatic Scales Control Bromo Seltzer Production. February, p. 58.

Bananas Ride Monorail To Packaging. February, p. 60.

"Supermarket" Packaging Of Replacement Parts. March, p. 64.

High-Volume Production In Sugar Packaging. March, p. 70.

Candy Processing and Packaging On Wire Mesh And Canvas Belt Conveyors. April, p. 64.

Ceramic Insulator Packing—For Fast Handling With Least Breakage. April, p. 66.

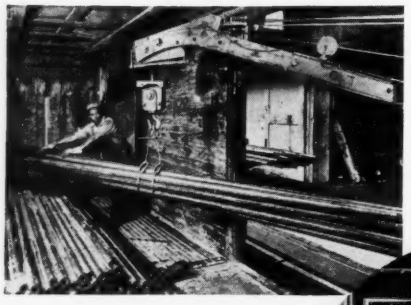
The Harder They Come (rock bits). May, p. 34.

Prepackaging Fresh Vegetables. May, p. 37.

High-Volume Glass Packing—With

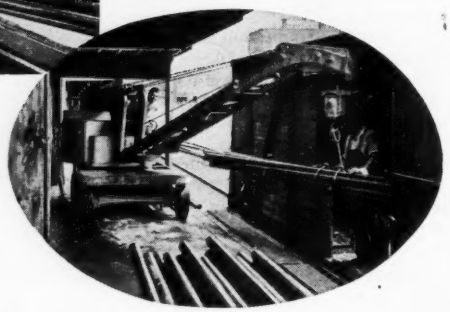
96 MAN HOURS CUT TO 32— WITH BAKER TRUCK

Crane Truck at NATIONAL ACME CO. pays for itself in 8 months



This Baker Crane Truck, unloading 20 ft. steel tubes each weighing 260 lbs., cuts man hours by 2/3 over former methods. Actual savings — as shown in tables below — are even greater than estimates made before the truck was purchased:

(Above) Boom of Baker Crane truck leaving box car with load of ten 2¾" x 20 ft. steel tubes.



(Right) Baker Crane Truck loading tubes onto trailer. Each tube weighs 260 lbs., load weighs 2600 lbs.

Man Hours per car — Previous Methods

Remove blocking from car	0.5 hrs. x 4 men	2.0
Unload to trailer 100,000 lbs.	11.0 hrs. x 4 men	44.0
Clean car	0.5 hrs. x 4 men	2.0
Haul to storage Unload from trailer to pile Return empty trailer	12.0 hrs. x 4 men	48.0
Total man hours		96.0

96 MAN HOURS

Estimated Man Hours with Baker Truck

Remove blocking from car	1.0 hrs. x 2 men	2.0
Unload to trailer 100,000 lbs.	11.0 hrs. x 2 men	22.0
Clean car	1.0 hrs. x 2 men	2.0
Haul to storage Unload from trailer to pile Return empty trailer	9.5 hrs. x 2 men	19.0
Total man hours		45.0

45 MAN HOURS

Actual Man Hours with Baker Truck

Remove blocking from car	0.5 hrs. x 2 men	1.0
Unload to trailer 100,000 lbs.	7.0 hrs. x 2 men	14.0
Clean car	0.5 hrs. x 2 men	1.0
Haul to storage Unload from trailer to pile Return empty trailer	8.0 hrs. x 2 men	16.0
Total man hours		32.0

32 MAN HOURS

A Baker Material Handling Engineer can show you how to make similar savings

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Co.
1219 WEST 80th ST. CLEVELAND, OHIO
In Canada: Railway & Power Engineering Corporation, Ltd.

Baker INDUSTRIAL TRUCKS

Care. June, p. 54.
Prepackaging Tomatoes In Trays. June, p. 59.

PAPER ROLLS
The Same Inventory In Half The Space. May, p. 54.

PHARMACEUTICALS
Automatic Scales Control Bromo Seltzer Production. February, p. 58.

PROCESSING
Monorail Cranes On Turntables. April, p. 44.
Charging 60-Ft.-High Tanks—Safely And Economically. May, p. 64.

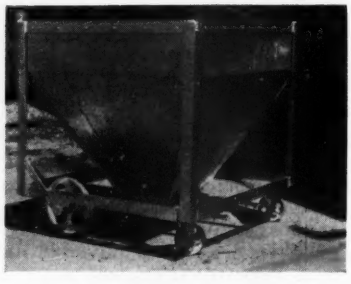
RUBBISH REMOVAL
G.E.'s General Rubbish Handling Program. April, p. 38.

SAFETY STANDARDS
Safety Standards For Cranes And Hoists. April, p. 50.

SCRAP HANDLING
Scrap Conveyor In A Sheet Steel Mill. May, p. 20.

SHEET STEEL HANDLING
One Sheet At A Time—The Costly Way. April, p. 34.

KEEPING PEAS GREEN—The handling of fresh peas from the vinery to the cannery is often a problem for the food processor. The vegetable is highly perishable and must be canned or processed in minimum time to maintain color and freshness. Formerly the product was handled in small boxes which were hand stacked on the truck. The Rock Valley Canning Co., Belvidere, Ill., has installed this new mobile hopper, which is loaded at the vinery and trucked to the canning plant. A special elevator for use at the vinery was also designed. The hopper is constructed of heavy steel on wide steel channels, with a square, funnel-shaped hopper mounted on four wheels, two of which are swiveled. Peas in the field are spouted into the hopper, and, when filled, the unit is rolled onto an elevator which lifts it up to the level of waiting trucks for quick transport to the cannery. At the latter, the hoppers are moved over a drop door leading to conveyor belts. A pin at the bottom of the hopper is pulled and the sliding bottom moved out, discharging the load to the belt for quick processing. Waterproof canvas covers are provided for each load hopper to protect the peas from sun, rain and dust enroute.—**Courtesy, West Bend Equipment Corp.**



Maintenance — THE PARTS

By FRANK C. WIER

Material Handling Supervisor
Steel and Tube Division
Timken Roller Bearing Co., Canton, Ohio

Following his two earlier articles "Maintenance—Whose Job?" (March) and "Maintenance—The Job" (May), the author here presents his concluding discussion on repair parts. Given are the details of a systematic control which maintains a continuous record for perpetual inventory and provides full availability to all mechanics at all times.

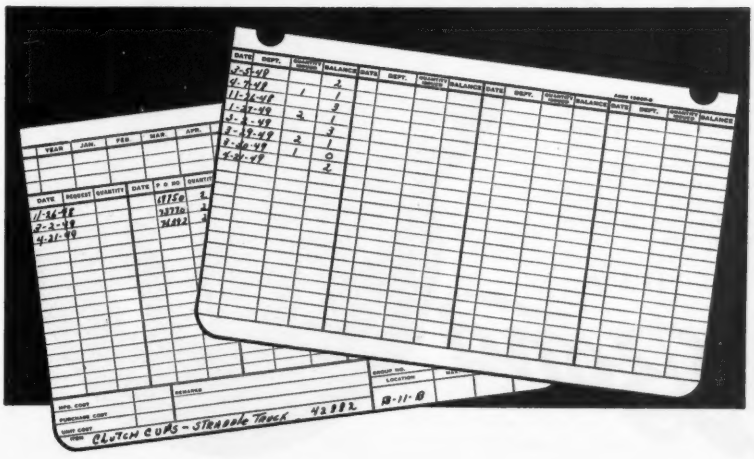
WHILE the importance of an adequate supply of repair parts to a material handling equipment maintenance program is taken as a matter of course, it is equally important to have a systematic procedure that will assure proper control of such parts in regard to procurement, stocking (or availability) and disbursement. It is the systematic control of such parts that makes them available when needed and thus eliminates the threat of downtime. Downtime could refer both to equipment out of circulation because of lacking parts, as well as to mechanics who are not fully occupied while waiting for missing parts to arrive.

PARTS STOCKROOM, with operator checking perpetual inventory files. Procedure is very simple.

A Systematic Procedure

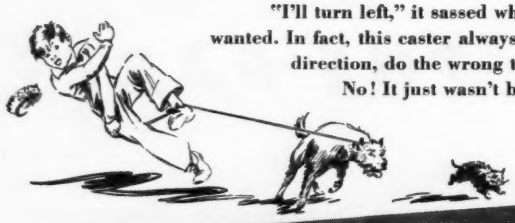
We keep on hand approximately 6000 types and sizes of parts for our various pieces of equipment, which were described in the first article in this series. Following are the detailed steps of the control procedure in force in our specialized material handling maintenance department.

1. When a package of parts is delivered to our repair shop, the operator in charge of the stockroom makes a physical check against the packing slips and against the original order. 2. Proper notations are made of back-ordered items which do not come in with the bulk of the shipment. (Incomplete orders are still a child of the times.) 3. A tag is attached to each item, except the very small or very large ones. 4. Parts requiring rust protection



PERPETUAL INVENTORY. Card (A) shows purchase orders, while Jacket (B) keeps record to date.

The Caster That Had a Complex



"I'll turn left," it sassed when a right turn was wanted. In fact, this caster always seemed to go the wrong direction, do the wrong thing. Insubordination? No! It just wasn't built for the job.

THE CASTER* THAT follows orders TURNS HANDLING INTO PROFIT

Easy swivelling of Bond 36-A series casters permits your workmen to turn trucks in a minimum amount of space. Time and labor are saved, and handling costs are cut to the bone. The arrangement of its double ball races, its fork design, and its heavy metal construction are your guarantee of long service and easy, free-flowing performance. Every caster in the complete Bond line is the result of careful study of actual working conditions. You'll find the right caster for your handling requirements in the Bond Catalog K-38. Send for your free copy today.

BOND FOUNDRY & MACHINE COMPANY
MANHEIM, PENNSYLVANIA

No. 1536-A (shown). Double ball race swivel truck caster with roller bearing, vulcanized-on rubber tread wheel. 36-A series wheel sizes range from 4" to 12"; capacities from 160 to 1700 lbs. per caster.

*IT'S A Bond REG. U.S. PAT. OFF.

during storage are greased or oiled.

The tagging applies to shelf-sized items that have serial numbers. Bulk items bought on size only—cap screws, nuts, bolts and fittings, for example—are put in small metal drawers or glass jars which are identified by size. These supplies are replenished from visual observation.

Bulky, heavy parts which are suitable for outside storage (with proper weatherproofing) are placed in a yard area adjoining the repair shop. Among such items are tracks for tractors, large gear wheels, and large shafting. One of the exhibits illustrates a typical handling procedure used for these items.

Before the items with serial numbers are put into bins, a perpetual inventory card is made out. Dates, quantities and numbers of purchase orders are entered on the card, while its jacket, or auxiliary sheet, shows the stock on hand at any given time. We use a visible type of filing system, which is segregated in separate sections according to the various categories of equipment. This is necessary because the numbering systems of the various manufacturers would be conflicting. The "visible" feature is a convenience which aids in locating the records quickly.

The spare parts room is a portion of the main repair shop (40′ x 120′), which gives accessibility from a layout standpoint. This is important since our mechanics are working on a three-shift basis. It was already indicated in the May article that the maintenance function is in a state of growth due to the expanding material handling department. While certain of our maintenance facilities will probably be brought in line later with the needs of an enlarged department, the functional pattern here described is basic and will not have to be changed.

Our location system for parts is a case in point. While storage facilities will be enlarged, the system in use now serves the requirements well. The bin sections are identified

(Turn to page 55)

SOCIETY, INSTITUTE AND ASSOCIATION CHAPTER ACTIVITIES

THESE committee members of the Midwest Material Handling Society, Chicago, formulated the plans for the June meeting and outing of the Society. Members and guests visited the Riverdale plant of the Acme Steel Co. and partici-

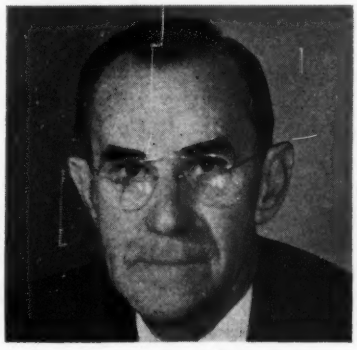
pated in a golf outing at the Cherry Hill golf course. Pictured above, from left, are Ed Evans and John Bucuss, Acme Steel Co.; Jim Valentine, Madden Equipment Co.; Robert Brady, Ingersoll Steel and Disc Co.; Ken Frase, Automatic Transportation Co.; Robert Montgomery, Montgomery Equipment Co., and Sid March, March Equipment Co.

MEMBERS and guests of the Material Handling Society of New Jersey held their May meeting at the Military Park Hotel, Newark. Guest speaker was Lt. Comdr. M. A. Borst, Supply Engineer Officer, Navy Supply Corps School, Bayonne Naval Depot. His subject was "Navy Material Handling Development." Borst was accompanied by other Navy engineers who took part in the question and answer period.

JAMES KINNEY of Gordon, Kinney & Staninger, Inc., manufacturers representatives for the Automatic Transportation Co., addressed the May meeting of the Detroit Chapter of Industrial Packaging and Material Handling Engineers. Kinney traced the history and development of the earliest mechanical industrial truck, the fork truck, platform truck and motorized hand truck.

AT THEIR May meeting the members of the Material Handling Society of Philadelphia elected the following officers and directors for the coming year. President, James MacDonald, General Electric Co.; vice president, Edwin S. Kostro, Philco Corp. Directors include Earl R. Lutz, Atlas Powder Co.; Alfred H. Meier, Curtis Publishing Co., and Carleton Lord, Yale & Towne Mfg. Co. Two other directors, Charles A. Meuller, Campbell Soup Co., and Albert B. Winterer, Rohm & Haas Co., carry over for the second of their two-year term of office. The members also created an executive committee, to be composed of not more than three past presidents, who will serve and vote with the board of directors. Retiring president, James B. McGinn, becomes the first member of this committee.

WILLIAM VAN C. BRANDT, one of the pioneers in the battery-powered electric industrial truck industry, has been appointed managing director of the Electric Industrial Truck Association. He



W. Van C. Brandt

will assume his new duties July 1. Active in the EITA for the past 25 years, Brandt resigned his position as manager of Railway and Motive Power Sales for The Electric Storage Battery Co. to accept the new post. He succeeds C. F. Kells, who has joined a publishing firm. Succeeding Brandt as vice president of EITA is M. W. Heinritz, vice president of Gould Storage Battery Corp. Brandt has been associated with the Electric Storage Battery Co. since 1912. He has been active in the battery-powered industrial truck industry almost since the first such model was built.

THE Caster and Floor Truck Mfg. Association participated in the Joint Material Handling Institute meeting at the Grove Park Inn, Asheville, N. C., on May 31st to June 3rd. Over 200 representatives of the Industry were present. A special committee is working on the standardization of hospital and industrial casters, in cooperation with various Government bureaus, with reference to procurement standards. The Wheel Committee of the Association announced the revision of Molded-On, Rubber-Tired, Factory Truck and Caster Wheel Standards.

THE Syracuse Chapter, American Material Handling Society, has elected the following officers. President, D. W. Pennock, Carrier Corp.; vice president, H. A. Carey, Delaware, Lackawanna and Western Railroad Co.; treasurer, W. D. Ackley, Oneida Ltd; secretary, V. E. Hall, Syracuse Supply Co. J. A. Dimet, Columbia Mills, Inc. and H. R. Bungay, Yale & Towne Mfg. Co. were elected directors for two years and F. Guido, The Bossert Co. and J. A. Cassedy, Baker Industrial Truck Co. were elected directors for one year.

THE Material Handling Institute, Inc., has added the following manufacturers to its membership. Island Equipment Corp., with

(Turn to page 76)

ON THE PALLET

NEWS • VIEWS • TRENDS

FACTORY branch sales office in New York City and a service station and parts depot for its entire Eastern territory have been established by the Automatic Transportation Co., according to an announcement by Elmer F. Twyman, general manager. Philip E. Whiting has been appointed Eastern district sales manager and will direct both New York operations. The sales office is located at 347 Madison Ave., and the service and parts depot at 1749 York Ave. Manager of the sales office is D. D. Kirkpatrick, and the depot is headed by Robert O. Divine. The new one-story depot, which will make possible immediate delivery of parts, includes 5000 sq. ft. of floor space, plus 1000 sq. ft. of balcony storage area. The company's New York export headquarters will be located in the Madison avenue sales office and will be headed by J. Kazimirski.

P. E. Whiting

THE second Western Packaging Exposition and concurrent Conference on Packaging, Packing and Shipping will be held at San Francisco's Civic Auditorium, August 9-12, inclusive. Over 6000 executives from all parts of the west attended the first show last August. Approximately 125 companies will exhibit at the 1949 Show.

APPROXIMATELY 350 people from western Pennsylvania and bordering Ohio and West Virginia attended the opening of Yale & Towne's new Pittsburgh plant. The building contains a spare parts depot, repair shop, show room and other facilities. It will provide factory approved spare parts and repair services, and will make available sales engineers to help users of Yale mechanized handling equipment in the Pittsburgh area. According to Samuel W. Gibb, general sales manager of the Philadelphia Division of Yale & Towne, the tremendous pressure on management to reduce its break-even point makes it increasingly dependent on mechanized handling equipment to move, store, weigh and otherwise handle materials in load units. This, in turn, places a serious responsibility upon the manufacturer of material handling equipment to provide factory approved spare parts and repair services locally.

A TOTAL of 11,000 visitors registered at the National Packaging Exposition and the concurrent Conference on Packaging, Packing and Shipping which was held in Atlantic City in May. The 207 exhibiting companies set an all-time record for this year's show.

A LARGE majority of business and industrial executives are unacquainted with current developments in material handling equipment. This fact was obtained from a study of the third Material Handling Exposition held in Philadelphia last January, which was made by Elmo Roper for Clapp & Poliak, Inc., exposition management firm, and the American Society of Mechanical Engineers. The survey revealed that 86.6% of visitors found equipment displayed which was valuable to their company but which they had not known about before. Ninety-five per cent said they saw equipment at the Show of value to their companies. Seventy-four per cent indicated they plan to buy equipment as a direct result of the show. Only 54% stated that they went to the show with the idea of looking at specific equipment. The survey further revealed that two-thirds of those who attended were a "new" audience; they had not attended the 1948 Exposition in Cleveland. The complete study may be examined by writing Clapp & Poliak, Inc., 350 Fifth Ave., New York 1, N. Y.

JULY 17 marks the 50th anniversary of The Thew Shovel Co., Lorain, Ohio. The first full revolving shovel was built by Captain Richard P. Thew in 1895. The Thew Automatic Shovel Co. was incorporated in 1899 and later re-incorporated as The Thew Shovel Co. Today, the company operates five plants and employs 1500 men and women. Officers of the power shovel and crane concern include C. B. Smythe, president; A. W. Smythe, vice president and general manager; and R. B. Miller, secretary and treasurer.

PROFESSOR James M. Apple, Michigan State College School of Engineering, has written a 66-page book which is designed to give executives a grasp of the problems of layout. The book is said not to be too technical for the layman, either. Copies at $1.85, may be obtained from Professor Apple, in care of the Michigan State College Press, East Lansing, Michigan.

NEWS FROM THE SALES FIELD

THE merger of the Heimer Equipment Co. with the Roll-Rite Corp. has been announced. All types of material handling equipment are said to be available from the one organization. The products of the following companies will be handled. Towmotor Corp., Barrett-Cravens Co., Harnischfeger Corp., Bassick Co., Roll-Rite Corp., American Monorail Co., Nutting Truck Co., Buschman Mfg. Co., and Marsh Stencil Machine Co. Carl Christensen will be president of the joint enterprise and E. J. Heimer will be available as a consultant. F. L. Robinson will head a sales force of 10 men.

WHITING CORP. has appointed the following distributors: George E. Miller Co., 24 Brighton Ave., Boston; Grays Metal Works, Inc., 56 St. & Grays Ave., Philadelphia; James J. Burke Co., 405 Kearns Bldg., Salt Lake City.

EQUIPMENT ENGINEERING CO., Memphis: This company has been appointed distributor for Skylift electric industrial trucks and Transporter motorized hand trucks by the Automatic Transportation Co. The Memphis firm, of which Ben L. Terrell is manager, will serve northern Mississippi, western Tennessee, and eastern Arkansas.

BURTON C. DOW, president of Dow & Co., Inc., has announced the election of John D. Eddy as vice president and sales manager. Eddy has been associated with the company for 10 years in various sales capacities. The company sells and services in the western New York territory for the following manufacturers: Barber-Greene Co., Bucyrus-Erie Co., Chain Belt Co., Clyde Iron Works, W. F. Hebard & Co., Frank G. Hough Co., Hughes-Keenan Co., Industrial Pallet Co., International Harvester Co., Towmotor Corp., and Whiteman Mfg. Co.

Better, Bigger Directory

New, improved features are incorporated in the 1949-50 FLOW Directory. More definitions and sketches; expanded sections; new sections; revisions for easier and more complete reference. Send your order now ($5 per copy).

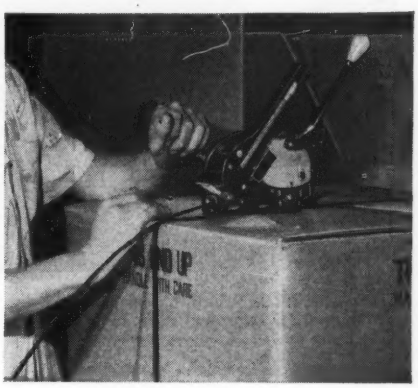
9 out of 10 companies can save on shipping with ACME STEELSTRAP

ACME STEEL CO. CHICAGO

HERE'S HOW EBCO DID IT. Ebco Manufacturing Company, Columbus, Ohio, package their water coolers using Acme Steelstrap and Acme Equipment. They report a saving of 33% in materials and time over previous packaging method.

In addition, using Acme Unit-Load Band for freight car shipments, this company has obtained savings of 25% in dunnage materials, 50% in loading time and labor, and 90% in reduction of breakage and damage claims.

Find out how an Acme Shipping Specialist can help you. Call him (no obligation, of course) — or mail the coupon today for free booklet of case studies, "Savings in Shipping."



Close-up of the Acme No. 3 Steelstrapper *showing application of Acme Steelstrap which saved 33% in packaging cost.*

STRAPPING DIVISION

ACME STEEL COMPANY

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11

ACME STEEL COMPANY, Dept. F-79
2838 Archer Avenue, Chicago 8, Illinois

Please send me a copy of your case history booklet, "*Savings in Shipping.*"

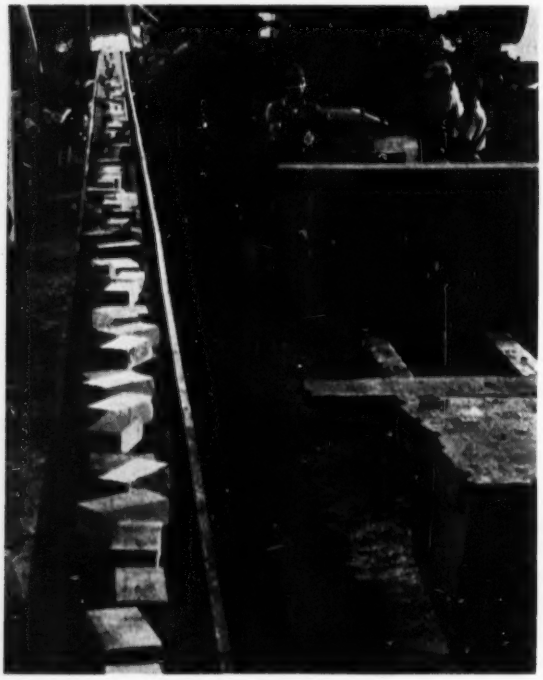
NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

JIB HOIST positions slab of stone on roller conveyor feeding to shearing machine.



BELT CONVEYOR which travels past each cutting station, transporst stone to storage.

STONE HANDLING

BRIDGE CRANES, ELECTRIC HOISTS,
GRAVITY ROLLER & BELT CONVEYORS
FORK TRUCKS, PALLETS

SORTING STATIONS in the yard. Traveling bridge cranes handle outgoing loads.

BROUGHT UP TO DATE

By PAUL A. MORI
Production Manager
Cleveland Quarries Co.
Amherst, Ohio

Gravity roller and powered belt conveyors and electric hoists now speed refractory stone fabrication. Modern handling equipment has taken the hard labor out of this operation.

SINCE before the turn of the century, the Cleveland Quarries Co. has taken raw material from its sandstone deposits and fabricated it as refractory stone. It is used as firestone for cupola linings, and in furnaces, acid tanks, and soaking pits. As the demand increased, the company added more men and finally power cutting machines. Less than a year ago it constructed a 61′ x 295′ building, especially designated for this fabrication. At the same time a carefully engineered layout was developed and modern material handling equipment installed.

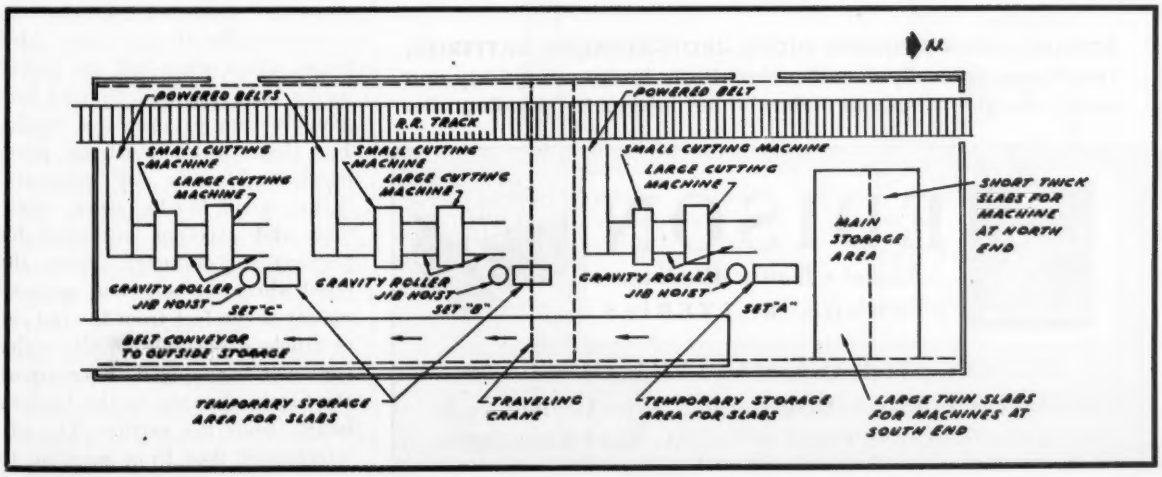
The new plant is equipped with a 10-ton crane which spans the width of the building, and travels its entire length. At the west side, a rail spur runs through the building and out into the storage area located adjacent to its south end. Incoming stone from the main saw mill arrives by over-the-road truck and rail car. The trucks are employed primarily for the overflow that cannot be accommodated by the gondolas. Two doors at the west side of the plant are designated for these trucks.

Crane, Hoists, and Conveyors

The crane unloads the carriers and deposits the stone in raw material storage areas at the north end of the building. These slabs weigh on the average of 1000 pounds each. Since they have been cut to the desired thickness at the saw mill, only two cutting operations are necessary in the fabrication plant. The flow sheet shows the machine layout and directional flow.

The two shearing machines necessary for a complete cutting operation are standard power presses which were modified for their present job. The first one cuts the slabs into strips (which determines the final width of the stone), while the second shears the strips into the final blocks. Sets "B" and "C," located at the south end of the plant, (see flow sheet), fabricate stones averaging three inches in thickness. These will ultimately be used in furnaces, acid tanks and soaking pits. Set "A," located at the north end, cuts stone averaging six inches in diameter. This stone is sold primarily for cupola linings.

The crane carries the slabs from the raw material to the temporary storage areas adjacent to the start of each set of machines. Since it is uneconomical to use the crane for the relatively light work of positioning the individual slabs, one-ton jib-hoists were installed. The slabs are spotted on a feeder gravity roller table, and fed into the modified power press. After they are cut, the strips are turned



LAYOUT SHOWS location of three cutting and inspection stations inside the plant. Note jib hoist at each station and overhead crane.

BECAUSE THEY ARE QUIET and fume-free, battery industrial trucks can be used in virtually any part of the plant. They can even be provided with spark-enclosed construction if fire and explosion hazards exist.

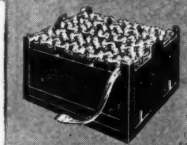
They use low-cost electric power and use it with peak efficiency . . . starting instantly, consuming no power during stops. Their electric motors have few wearing parts; are easy to maintain; rarely need repairs. Thus they have inherent economy and dependability.

They are doubly dependable and economical when powered by EDISON Nickel-Iron-Alkaline Storage Batteries. These are the longest-lived and most durable of all batteries, with steel cell construction, electrolyte which is a preservative of steel, and a foolproof principle of operation.

If you do not already use EDISON, get a current price quotation —you will probably find initial cost *much lower* than you think. Couple this factor with well-known EDISON long life and you will have the key to year-after-year economy.

ADVANTAGES OF EDISON NICKEL-IRON-ALKALINE BATTERIES: They're mechanically durable; electrically foolproof; quickly and easily charged; simple to maintain; not injured by standing idle.

EDISON
Nickel • Iron • Alkaline
STORAGE BATTERIES



EDISON STORAGE BATTERY DIVISION
of Thomas A. Edison, Incorporated, West Orange, N. J.
In Canada: International Equipment Co., Ltd., Montreal and Toronto

lengthwise and passed over another gravity roller section to the second machine where they are sheared to the desired size. Templets are used here to indicate the cutting lines. The finished stones are picked up by a belt conveyor and as they move along an inspector checks each one and trims any rough corners. If the stones are marred or for any other reason unacceptable, they are placed on a second powered belt conveyor which runs directly behind the processing line and out into the storage area. In the yard they are sorted—some are sold as small select firestone or as patch linings, some are reduced to sand, while others end up as waste.

Conveying to Shipment

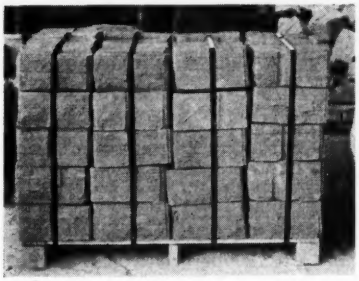
The approved blocks continue on the processing conveyor, are turned 90 degrees and taken to the railroad car, truck, or pallet for outgoing shipment. Finished blocks are of two general sizes (although the exact size is determined by the customer's order). Those designated for furnaces, acid tanks, etc., average 15″ x 18″ x 3″, while those used primarily for cupola linings average 6″ x 12″ x 6″. All stones are shipped according to the customers' orders.

Accordingly they may be shipped on pallets, loose, or piled, in either rail cars or over-the-road trucks. If they are to go on pallets, they are taken off the belt, secured with steel strapping (see photo), and loaded into box cars or trucks by a fork truck. If shipped loose, the stones are deposited from the conveyor line directly into three-sided boxes, which when full, are picked up by the crane and dumped into gondola cars or open-top trucks. For those which must be piled, hand stacking is still necessary. Strips, wood blocks, straw, shavings, and excelsior are used for packing and dunnage. From the point where the belt ends, approximately seven feet from the rail car or truck, a portable gravity roller conveyor is emplyed to transport the blocks directly to the loader's hands inside the carrier. The uninterrupted flow from machine to

stacking cuts handling to a minimum.

Intermediate Storage

Refractory stone which is not immediately shipped is placed on the north-south belt conveyor and taken to the aforementioned storage area. Here the stones are stocked according to size and color, and piled with wooden strips between them in depths corresponding to ordinary pallet loads. Since



UNITIZED SHIPMENTS of firestone are steel-strapped to pallet and power handled.

the stacks are piled flush with one another, markings on the topmost stones indicate the width of such a load. Another crane which travels on a 1700-foot tramway is employed for yard handling. When the material is to be shipped, the crane, equipped with a double choker-sling, picks up two columns of stones and deposits them on the outgoing carriers. The storage area is also used for segregating the by-products of sandstone fabrication. As they come from the plant on the belt conveyor, operators sort them into three-sided boxes for re-routing. These boxes are likewise equipped with crane lugs.

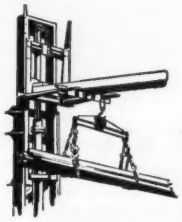
This sums up the remarkable improvements which Cleveland Quarries Co. has obtained through proper layout and flow engineering. As little as five years ago, all the cutting of slabs was accomplished entirely by hand with the use of hammers, wedges, and saws. It was then necessary to hand-load the stones into boxes, transport them to the shipping area, stack them, and reload the stone, piece by piece, into the outbound carriers. With the recently introduced methods the company produces and ships a considerable tonnage with an absolute minimum of handling.

* At A. O. Smith Corporation it's AUTOMOBILE FRAMES

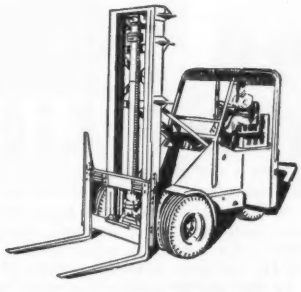
simple as ABC with ROSS Carriers

Big-load transportation in and between plants need no longer be a problem! Now, the ROSS Industrial Carrier extends the benefits of unit-load handling to the farthest corners of plant and yard—and beyond. It increases the effectiveness and capacity of bridge cranes. It speeds movement of materials between areas served by fixed handling equipment. Load-length is no problem. It maneuvers fast in congested areas, on any surface. Self-loading and unloading, it requires only a driver.

Many plants know it's simple as A, B, C to solve big-load problems with ROSS Carriers. Capacities, 10,000 to 30,000 pounds . . . Write for details.



ROSS Lift Truck BOOM ATTACHMENT
Permits lift truck to be used as auxiliary crane. No interference with forks. Easily detachable . . . Other attachments: scoop, ram, snowplow, winch, side-shifter, slope-piler, etc.



ROSS LIFT TRUCKS
. . . team-mates of the famous Ross Carriers. Capacities, 5,000 to 18,000 pounds.

Rely On ROSS

THE ROSS CARRIER COMPANY
280 Miller Street, Benton Harbor, Michigan, U. S. A.
Direct Factory Branches and Distributors Throughout the World

ON THE PALLET . . . *(Continued from page 40)*

MOVING stairways soon will be helping jet flight operators aboard U. S. Navy aircraft carriers, according to an announcement by the Westinghouse Elevator Division, Jersey City. The company is building three specially-designed electric stairways, one to be installed aboard each of three carriers in the Essex class. The first moving stairways to be used aboard any warship will be capable of carrying 30 pilots a minute from the hangar deck to the flight deck, 28 ft. above.

FOR more than three years, engineers and scientists of the General Electric Co. have been working on problems connected with the propulsion of U. S. Navy ships by atomic power. While results are encouraging, application of atomic energy to ship propulsion as well as to other power uses is still a number of years away, according to Howard P. Bish, manager of G.E.'s Aircraft, Federal and Marine Divisions. Bish stated that the phase of work on which the most effort has been expended thus far is concerned with heat transfer. This refers to getting the heat, generated from an atomic energy source, to the place where it can be utilized. Studies to determine the most suitable type of atomic reactor for this service and to solve the problems of control are also being carried on.

THE Hyster Co. has opened its new Los Angeles area retail truck sales and service facilities at 5301 Pacific Blvd., Huntington Park, Cal. The building contains a large show room, parts and service departments, offices and a 40'x75' storage area. A staff of 14 people is headed by L. W. Barclay. The distributor handles Hyster equipment in 13 counties of southern California. Hyster has also announced the new location for its Seattle distributor is at 753 Ninth Ave.

THE National Safety Council's 1948 "Accident Facts" discloses more than 10 per cent of all lost time injuries during 1947 started with back strain. In most cases, the article reports, back strain was caused by improper lifting, pulling and pushing material and parts. To eliminate these hazards, mechanization has taken on new impetus in recent years, and mechanization, in its turn, has brought some new problems. As the size of the parts and pieces handled has increased, powerful new machinery has been introduced which of itself can create hazards unless it is properly designed and safely operated. Safety codes for power trucks have been drafted by users, government agencies and manufacturers of this equipment. This code should go a long way toward the establishment of safe practices. — *From an address by C. S. Schroeder, Member, Engineering Committee, Electric Industrial Truck Association, before the 26th Annual Greater Chicago Midwest Safety Conference.*

One man **and a C-F Lifter . . .**

One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.
C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

CULLEN-FRIESTEDT CO.
1320 S. Kilbourn Ave., Chicago 23, Ill.

HANDLE SHEETS with C-F LIFTERS

TRADE MARK

"Cheap" Pallets
Usually Cost More Than
RAZORBACK BRAND PALLETS

Are you buying the cheapest pallet you can get? If you will consider upkeep, and the life of your pallets, you'll find RAZORBACK Brand Pallets are your most economical buy. Continued increase in demand for our pallets is proof that they give complete satisfaction. Compare the quality of our pallets with those you are now using. Our delivery promises are dependable!

ARKANSAS PALLET CORP.
P.O. Box 794-A Phone 6474
PINE BLUFF, ARKANSAS

BIG IMPROVEMENTS . . .
(Continued from page 21)

row is braced with one length of 2″x6″ lumber. One layer makes the load.

Advantages of the revised method: 1. Completion of assembly on a second conveyor has relieved the main build line of congestion. 2. Since the simplified cradle costs only 30 percent of the elaborate crate used before, an appreciable saving in packing has resulted. 3. Reduce parking time.

Tray Pack With Nesting Sections

Here's another packing idea which superseded an earlier and costlier one. The items—governors—used to be received 24 to an individual container. Manual handling of the units meant multiplied handlings, and breakage of containers resulted in a housekeeping problem in the storeroom. The individual governors were hung on an overhead conveyor for delivery to assembly. This operation required two operators, who also loaded distributors, oil cleaners and clutches, which were handled in the same manner.

The material handling department made a study to reduce the packing cost, as well as the cost of double handling within the plant.

The pallet tray pack, Figure 2, was developed for the items mentioned, clutches excepted. A feature of this pack is the nesting sections, six high and two wide, with a total capacity of 420 governors per unit. Each nesting section has a base of 3/8″ lumber, and a nesting post at each of the four corners makes a load that is rigid and secure. The unit is based on a nonreversible 48″ x 48″ pallet.

The load is taken off the vendor's delivery truck and spotted directly in the assembly line, where the operators remove the items as needed. The empty nesting sections are taken off and stacked on an empty pallet. By the time the entire tray pack is used up the empty load car-

The LOAD DISPATCHER

A RUGGED RAPID MATERIAL HANDLING TRUCK — CAPACITY 3,000 POUNDS

At this busy southern machine shop, a Load Dispatcher tractor handles a three car tow easily in a manner that amazed the management in and around surroundings that used all the floor space allotted to storage and crowded the aisles to a high degree.

The extreme maneuverability of the Load Dispatcher is one of its many qualities that adapts it so readily to the requirements of busy factories, foundries, warehouses, etc., where floor space is valuable and at a premium. It is handy and a money maker on hundreds of jobs where the aisles are narrow and crowded and the going is tight.

Its first cost is amazingly low because of its utter simplicity in design which assures also the very minimum in time out and expense for maintenance and the surprisingly low cost for daily operation. The Load Dispatcher needs no transmission —no clutch—no radiator, no anti-freeze—no electric batteries, no standby or recharging equipment.

The Load Dispatcher is a well-built, strong device produced in one of the best equipped factories in America for precision work.

A Remarkable TRUCK at a Remarkable PRICE!

PALLET CARRIER P2748

Now standard equipped with
- **Water Muffler**
- **Protectoseal Gas Tank and Cap**
- **Totally Enclosed Mercury Ignition Switch**

You will be interested in the many unique, practical features of the Load Dispatcher. Write for catalog. *Some valuable territories open for distributors who can qualify.*

SCHWITZER-CUMMINS COMPANY

Material Handling Truck Division

1125 MASSACHUSETTS AVENUE • INDIANAPOLIS 7, U.S.A.

"WAITERS"
...cost more than "Tip-Money" in your plant!

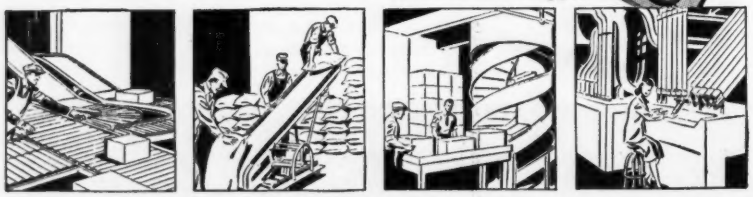
MANUAL handling on production, assembly, or packaging lines is costly in manpower two ways—time waiting for material and time required to deliver it.

Whatever you make, package, or handle — in large or small quantities — loose or in containers — see Standard for a complete engineered gravity or power conveyor system—a portable conveyor unit — a portable, lightweight conveyor section.

The range and versatility of Standard Conveyor equipment has been developed in more than 40 years of service to business and industry.

STANDARD CONVEYOR COMPANY
General Offices: North St. Paul 9, Minnesota
Sales and Service in Principal Cities

Send for Standard's General Catalog—see how conveyors are used to best advantage in every field of industry. Ask for Bulletin No. FL-79.



ROLLER · BELT · SLAT · CHAIN CONVEYORS · PORTABLE CONVEYORS AND PILERS · SPIRAL CHUTES · PNEUMATIC TUBE SYSTEMS

rier is completely assembled, ready for return to the vendor.

Uneven Contour—Even Pack

The components shown in Figure 3 are steering gear assemblies, which have steering columns that project about 18 inches. Because of this complex contour it was difficult to palletize the item. (Incidentally, there is good reason for the emphasis on palletization at the Ford Tractor Division. With tractors rolling off the assembly line bumper-to-bumper, floor space is naturally at a premium, and use of cubage is a primary consideration in storing component parts.)

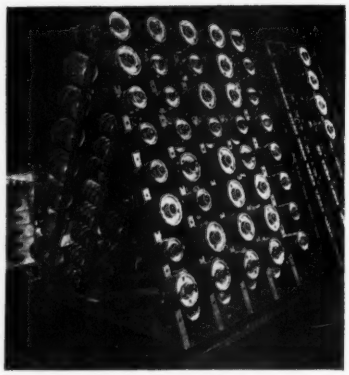


FIGURE 4—This "A" frame solved a handling and cost problem.

In a study by the plant's material handling department, three or four preliminary pallet designs were tested. These were rejected because critical finishes were not adequately protected and because the calculated saving did not justify the investment.

The final development was the type of pallet shown, on which 75 of the subassemblies can be placed in three layers, each assembly weighing 70 pounds. On top of each load are placed four notched 2″ x 6″ spacers, as shown. The projecting steering columns of the top layer extend safely into the space provided by the fillers, which also support the pallet loads stacked on top. The individual pallet load is 48 inches high, and is secured during shipment with two bands of ¾″ steel strapping. The components are spotted on these

pallets in the assembly line.

At the Ford Tractor Division many thousands of gears are transported between the manufacturing and transmission assembly departments. These gears were originally handled in individual containers, which were primarily designed to protect the vulnerable machined parts against damage. The containers served the purpose of product protection well, but the handling method proved costly and somewhat cumbersome because (a) the containers required rehandling and (b) manual lifting of the individual units was a tiring task.

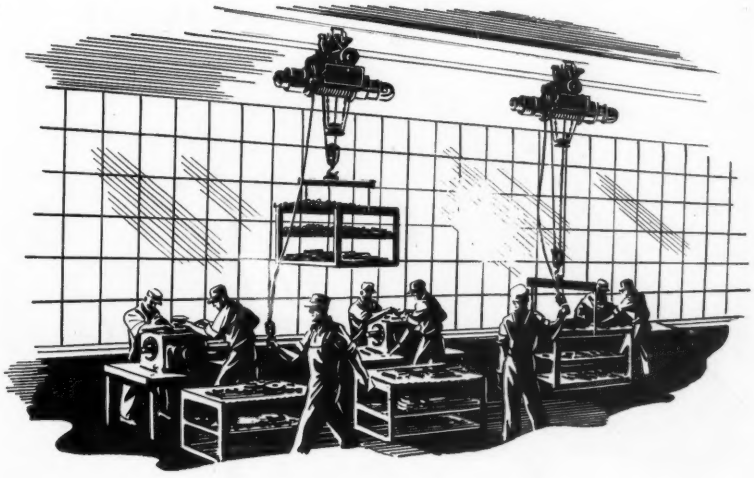
Ingenious "A" Frame

Material handling engineers made a study of the problem, with a view to transporting the vulnerable parts in quantity. The outcome of the experiments was the dual "A" frame which is shown in Figure 4 on these pages. The two side members that serve as supports are 4" channels which are riveted to the 3/8" boiler plate bed. The dual "A" frames, one within the other, consist of 2" angle iron welded to the steel deck, with reenforcements at each end and across the deck.

The outer and higher frame is for the larger gears, the shorter "inside" frame for the smaller gears. The load-carrying members have holes drilled at 2" centers along their length, permitting the pins to be adjusted vertically according to the size of the gears. The pins are covered with rubber hose, which is a safe surface for sliding the gears on and off. The capacity of a dual frame is about 600 gears, whereas the previously used individual containers held as few as five of the larger units.

The entire rack load is picked up by fork truck in the gear machining department and delivered to transmission assembly. Three loaded frames are lined up at the assembly point and provide enough work for four hours. It is no longer necessary to lift numerous individual containers, which also took up a great deal of floor space. The empty

BREAK ASSEMBLY LINE BOTTLENECKS BEFORE THEY FORM



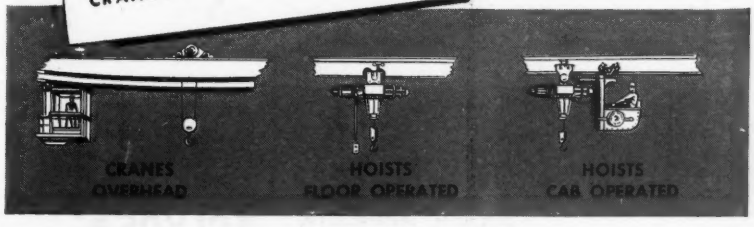
Be sure there is enough lift power and speed to feed parts or sub-assemblies to the main line at the correct tempo.

Will your need be for overhead cranes? What capacity? Or hoists? How large? How operated? From cabs—or from the floor with pendant controls?

The man best qualified to help you answer these queries is the Shepard Niles specialist. He has reference data to cover the performance of all three—and his mind is unprejudiced because he has sold all three for years. Let him help you plan!

SHEPARD NILES
CRANE AND HOIST CORPORATION

Makes and sells all three lifting tools for airborne shop loads.



466 SCHUYLER AVE. • MONTOUR FALLS, N.Y.

racks are quickly returned to manufacturing for reloading.

Thus, continued improvements maintain economical material flow under changing operating conditions.

MINIMUM TRAVEL . . .

(Continued from page 23)

tion of tractor-trailers and fork trucks keeps travel at a minimum, and allows the fork truck to serve the primary purpose of stacking rather than transportation.

Fast Selection of Orders

The materials needed in the selection area are destacked by the fork truck, placed on trailers, and hauled by tractor to the forward area. Here, fork trucks, operating in 12-ft. aisles (necessary for maneuvering) place the pallets three high in storage racks. The racks are nine ft. long and 104 ins. high, with shelves spaced on 48-in. centers. Pallets containing faster moving items are stacked in mul-

CLYDE HANDI-CRANES

Here is the modern, efficient and economical way to cut material handling costs and speed up production in your factory, shop or warehouse.

•

Clyde Handi-Cranes can pick up loads from either side, carry them and deposit them with ease and precision. They are fast, mobile and so simple to operate, even an inexperienced workman can handle them.

•

Hundreds of Handi-Cranes are saving time and money at leading industrial plants today, doing the work of from 5 to 8 men and releasing them for more productive work.

•

Think of the advantages of a Handi-Crane in your own plant. You'll have loading and unloading facilities wherever and whenever you want them . . . no delays . . . no wasted time.

•

Write for circular MP-40 for complete specifications on Clyde Handi-Cranes

•

CLYDE IRON WORKS, Inc.

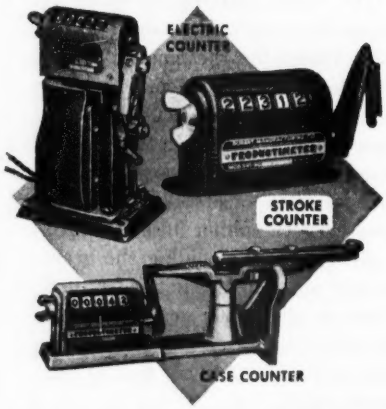
DULUTH, MINNESOTA

A Barium Steel Corp. Subsidiary

The perfect solution to thousands of material handling problems

CLYDE

PRODUCTIMETERS *Count Everything*



Productimeters assure accurate count on every job . . . help prevent losses and maintain maximum production. There's a Productimeter for practically every industrial need.

Send for Catalog No. 100

DURANT MFG. CO.
1944 N. Buffum St. Milwaukee 1, Wis.
144 Orange St. Providence 3, R. I.
Representatives in Principal Cities

PRODUCTIMETERS
SINCE 1879
Speedometers OF INDUSTRY

tiple units directly on the floor. Stocks of these goods are maintained in separate aisles.

Riding-type industrial tractors coupled to four-castered trailers are used for order selection. The position of the racks, shown in the layout, permits easy access to the shipping docks. About 3000 items are located along the selection lanes. Operators pick their orders from a tally sheet and place the goods on two or three trailers. The full trailers are taken to the shipping dock by the orderman, who picks up empty trailers and resumes order picking at the point where he left off. The loads are checked on the shipping dock, then unloaded inside the trucks. LTL and "call" orders are filled similarly and routed to the supplementary truck dock for dispatching.

Clean operating areas are always important, especially so in a plant handling food stuffs. This phase of maintenance is performed by a powered sweeper. With this equipment, one operator can keep many thousands of square feet cleanly swept. The job is done on schedule, and the resultant maintenance care contributes to good housekeeping and plant safety.

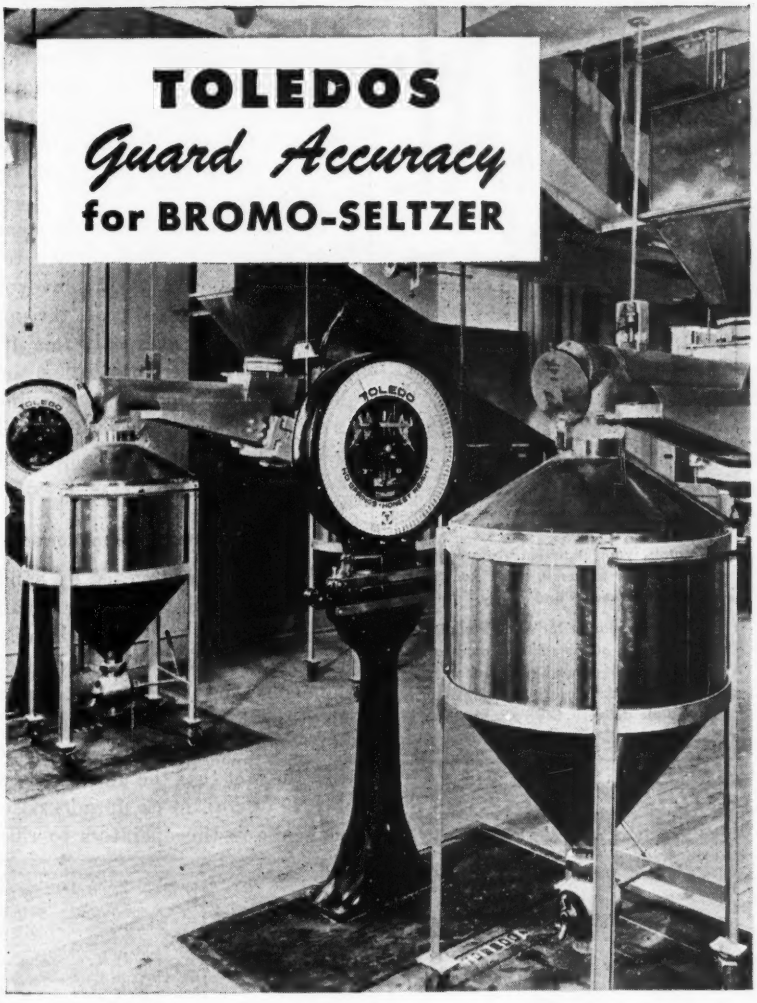
The well planned layout, aided by the choice of specific types of rolling equipment for each major job, has minimized travel distance and manual handling. Several hundred tons of foodstuffs are shipped daily from this one-story grocery warehouse, and the individual cases are touched by hand only three times from point of receival until they are dispatched.

SYNCHRONIZED ASSEMBLY . . .
(Continued from page 26)

that usually results from traffic congestion.

Much as in an automobile assembly operation, various sub-assemblies are built and fed to the line as the main unit progresses in its travel. The liner, for example, receives the gear disc and basket (the latter a circular container for the bottles), also the basket mech-

TOLEDOS
Guard Accuracy
for BROMO-SELTZER



Accurate batching . . . automatically controlled by Toledo Scales . . . helps to maintain unvarying quality in production of Bromo-Seltzer at the Emerson Drug Company, Baltimore, Md.

Shown here is part of the efficient production system of this plant. The dry, granular processed salt is fed to the bins by a belt operating in a stainless steel housing. The material is weighed into the portable hoppers shown on the scale platforms . . . with Toledo automatic controls cutting off the filling operation at precisely the desired weight.

Control your costs and quality with TOLEDO all the way . . . in weighing, counting, force-measuring, batching or testing. Send for new bulletin No. 2020. Toledo Scale Company, Toledo 12, Ohio.

Toledo Service as near as your telephone . . . with factory-trained service men in more than 200 cities of United States and Canada.

TOLEDO
HEADQUARTERS FOR SCALES

RENTAL

IN THE PHILA. AREA

PORTABLE has the right material handling equipment for the right job! Leaders in equipment rentals, your requirements are sure to be found in our immense stock. Rentals can be made daily, weekly and yearly.

If you're in the market for re-built equipment, a card will bring our latest illustrated catalog. We handle the best machines available, and each is job-tested before it is sold, available for immediate delivery. See Portable for a lift!

Sales • Rentals • Service

PORTABLE SERVICE EQUIPMENT CO., Inc.

3519-31 N. FRONT ST., PHILA. 40, PA.

anism and other parts. This subassembly is made on a gravity wheel conveyor, which facilitates feeding the units to the point of use. After the liner has been inserted, the cabinet is stood upright on its crate base.

Up to this point, the cabinet has been lying on its back, which requires six linear ft. of conveyor space. Beyond this station, the upright cooler occupies only four ft. on the line. Therefore, when the plant was laid out, it was possible to save ⅓ of the conveyor cost and yet maintain the production rate of one per minute.

Flow Techniques for Production

The coolers are shunted by hand at this transition point over a ball table, and have now traveled a distance of 100 ft. The second half of the conveyor is four ft. wide whereas the first section is 36" wide. The extra width (together with the fact that the unit occupies only 20" depth in its upright position) allows the operators to ride

SPEEDWAYS

put your production on wheels . . . in factory, warehouse, shipping room.

You can cut handling costs and save manpower with *Speedways* gravity wheel conveyors.

If the products you make require frequent handling between fabrication and shipping, you can use Speedways. For these versatile, portable, maintenance-free conveyors are adaptable to nearly every size and type of flat-bottomed package or container weighing up to 100 lbs. per square foot of surface. Switches, curves, powered lifts, and other accessories give you complete freedom in planning Speedways conveyor lines.

NEW 1949 Series Speedlift endless belt booster ready for immediate delivery

WRITE for illustrated literature.

KEEP 'EM ROLLING WITH SPEEDWAYS CONVEYORS, INC.

1242 Niagara St. Buffalo 13, N. Y.

Represented and stocked by experienced materials handling equipment engineers in principal cities of U. S. and Foreign countries.

MAKE THE MOST of these *Lorain Crane Features* to LOWER MATERIAL HANDLING COSTS

Are you faced with today's high "break even point" and the need for cutting material handling costs? The many job-tested features found in Lorain Self-Propelled Cranes, make material handling jobs around a modern plant or storage yard an easy, low-cost operation. With this single-engine, *one man* machine, you can cover stockpiles in every nook and cranny of your yard...obtain additional storage from limited space...serve several nearby yards...with a minimum of man-hours and manpower.

There are three basic types of Lorain Cranes—two-speed crawlers; rubber-tire mounted Self-Propelled cranes for localized mobility (speeds up to 7 M.P.H.); and rubber-tire Moto-Cranes for fast travel between plants or stockyards at speeds up to 30 M.P.H.

Call your local Thew-Lorain Distributor for full details.

THE THEW SHOVEL COMPANY • Lorain, Ohio

Put These Lorain Job-Tested Features to Work For You

1. 15 different attachments to handle various materials
2. Plenty of boom to reach far or stack high
3. One-man operation
4. All controls centrally located
5. One engine propels machine and powers all crane operations
6. 4 speeds in both directions (up to 7 M.P.H.) on rubber tires
7. Fingertip air-power steering
8. Maneuverability in cramped quarters

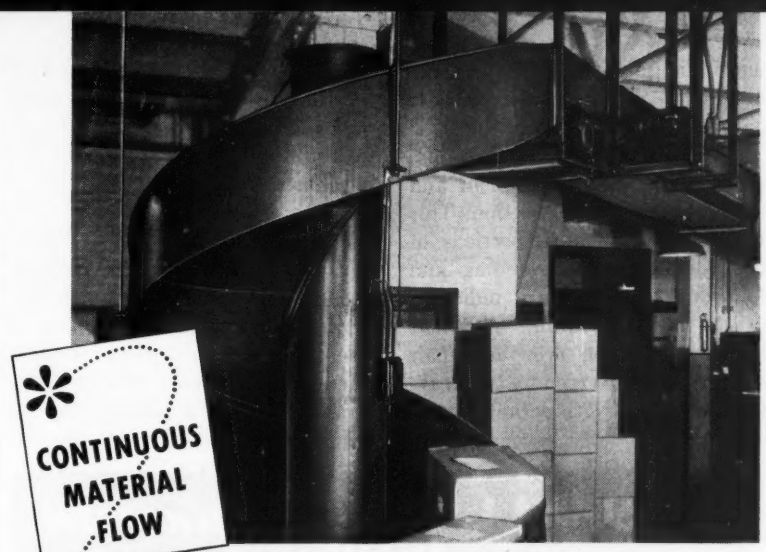
This free booklet will be mailed upon request.

New Lorain® LORAIN CRANE HANDLING *VS* MAN HANDLING *SAVES MONEY*

the conveyor in front of the coolers for the distance of their stations. This arrangement affords a steadiness for the men who must make exacting adjustments on coin mechanisms.

Just beyond the ball transfer table the compressors are added. These, weighing about 100 lbs. each, are fed in from a second-floor storage and sub-assembly room, via a combination of powered belt and gravity roller conveyors. In the assembly room the feed line parallels the assembly conveyor for about 30 ft., then makes a 90-degree turn to the assembly point. The compressor is slid by two operators into the cabinet, whereupon wiring work completes the installation.

Seventy ft. south of the ball transfer table 170 ft. (from the start of the line) is the door hang-on station. This sub-assembly has traveled on the parallel slat conveyor up to this point at the same rate as the cabinet, and is now carried up a slight ramp to the main



OLSON CONVEYORS

Manhandling means lost efficiency. That's why point-to-point, *continuous* material flow is important.
An Olson system gives you continuous flow because it includes every needed type of elevator, chute or conveyor. Whether it's a single unit or a complete system . . . a combination of standard and custom engineered units . . . it is tailored to your particular handling problem. Call Olson today! Get the details on really efficient handling through *continuous* material flow.

SAMUEL OLSON MFG. CO., INC.
2426 Bloomingdale Ave., Chicago 47, Illinois

AMAZING LIGHTNESS

MAGCOA DOCKBOARDS
...made of Magnesium

MAGCOA Dockboards made of magnesium, the "miracle metal", can be handled by one man without the aid of truck, chain or hoist. They weigh less than a third as much as steel boards of comparable size and strength, and are reinforced like a bridge to carry extremely heavy loads. Their lighter weight speeds up loading and unloading operations . . . cuts down danger of hernia and mashed feet or hands. Non-sparking magnesium eliminates explosion hazard, too. Every MAGCOA Dockboard is designed to the particular requirements of your docks. Write us for further information.

If lightweight magnesium is applicable to any of your products, our facilities warrant your serious consideration.

Our Materials Handling Line Includes MAGCOA Hand Trucks, Barrel Skids and Grain Shovels
Made of Magnesium

Magnesium DOCKBOARDS

MAGNESIUM COMPANY
OF AMERICA
EAST CHICAGO, INDIANA
EASTERN DIVISION—30 Rockefeller Plaza, New York 20, N. Y.
WESTERN DIVISION—831 S. Flower Street, Los Angeles 14, Calif.

line. The pin half of the three hinges is on the cabinet, the leaf half on the door.

After the door hang-on station, we have the final adjustment and mechanical inspection section. This consists of two 50-ft. portions of the conveyor just preceding and following the 180° turn indicated in the layout diagram. Adjacent to this operation are the repair areas which are served by two gravity roller conveyors permitting rework units to be taken from and returned to the line. These spurs join the main conveyor at 90° and ball tables facilitate shifting of the machines.

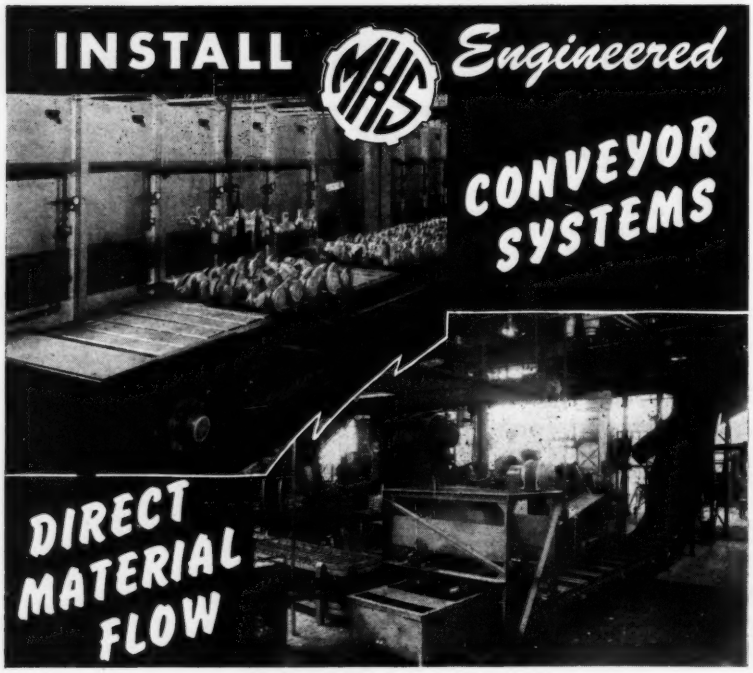
Dual Line Gives Testing Time

Upon completion of the adjustments and inspection operations described above, the Vendos flow to the refrigeration testing department. A 50-ft. long gravity roller conveyor connects laterally the inspection station with the beginning of the test line. This conveyor is also slat type, 48 in. wide and 280 ft. long, and travels at two ft. per minute. The cabinets are placed back to back on four-ft. centers and thus the production rate of one every minute is maintained.

This particular arrangement and timing of the test line has solved what at first appeared to be a serious problem. We had to have 140 minutes of testing, and with the cabinet at four-foot centers we would have needed a 560′ conveyor. This would have required us to bring the conveyor back to the center of the plant, whereas the planned line of travel was straight south to packing and shipping. By having the cabinets back to back and a conveyor travel of two FPM, we obtained the needed 140 minutes of testing with the 280′ length, as well as delivery to the desired location.

In the back of the cabinet is installed a recessed nut, welded to the shell, whose original purpose was for bolting to the back board of the crate. It also serves as an anchor point for attaching the cable that pulls the overhead trolley. An eye bolt joined by a swivel at the lower end of the cable is screwed into the recessed nut. The trolley riding in a bus-duct contains two 110 volt outlets, one for plugging in the compressor cord and the other for connecting the recording meter. The meters ride on top of the coolers on rubber vacuum cups and the operating temperatures together with cycling time is recorded. Adjustments are made and the chart is placed in a file under the serial number of the unit.

In planning and laying out these lines, particular attention was paid to material handling as an aid to production, and it will have noted that strenuous muscular tasks are never necessary. Scheduled delivery of small parts at night prevents traffic congestion and maintains an ample supply of material for the full shift. The same assembly line is used for running vertical and horizontal coolers at the same



and Reduce Costs

Here are seven ways which MHS conveyor systems—tailored to the job—can save you money:

1. *Reduce handling of parts*
2. *Eliminate hand trucking and congestion*
3. *Provide storage for material in process*
4. *Reduce work-in-process inventory*
5. *Reduce spoilage resulting from handling*
6. *Effect orderly flow of material*
7. *Increase output per man*

Mechanical Handling Systems can engineer your handling equipment to give you the most efficient system for your requirements. MHS makes *all* types of conveyors—slat, belt, apron, chain, monorail, etc.—and thus presents an unbiased opinion on the type or combination of types best suited to the job. From the designing and building to the final installation, the system is under full MHS responsibility. It is in the hands of a staff thoroughly experienced in lowering costs of every kind of product—from bolts and bread to trucks and textiles.

MHS *Free bulletin describes variety of installations. Send for it.*

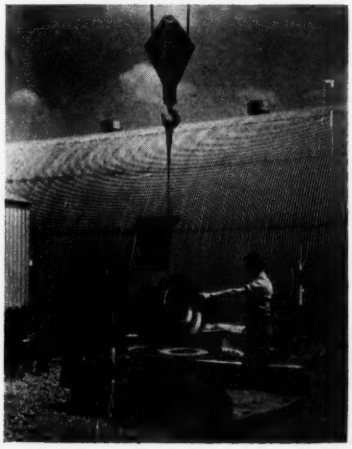
MECHANICAL HANDLING SYSTEMS, INC.
Manufacturing Engineers
4622 NANCY AVENUE • DETROIT 12, MICHIGAN
Offices in Principal U. S. A. Cities

time. The line is also adaptable to contracted or expanded production; if production were contracted by 50%, for example, the assemblers would be stationed farther apart and the conveyor maintained at regular speed.

For a description of the packing of Vendo Units see the Packaging Mechanics Section of this issue—Ed.

MAINTENANCE PARTS . . .
(Continued from page 38)

with initials and numbers, the initial indicating the row, and the number indicating the sequence of the bin in that row. If a particular bin is divided into sections, an initial is added for each one after



BULKY PARTS in yard. Locomotive crane spots drum in pan for transfer to shop, rear.

the numeral. The location is of course noted on the perpetual inventory card for each item.

Value of Perpetual Inventory

The procedure developed for removing parts from inventory is as follows. All mechanics have access to the spare parts storeroom. As an operator removes an item, he takes off the tag and leaves it in a receptacle provided for the purpose. Once each day the parts man processes the tags, which gives him all the information he needs to maintain the inventory records.

The parts man works eight hours a day, five days a week. His responsibility is to keep the perpetual inventory up to date, receive all parts and check them as well as prepare them for storage, place them into the bins, and make all necessary records. He also assists in the procurement of parts.

This procedure is simple and gives adequate control over the stock of thousands of parts that is regularly maintained. Parts are always available to the mechanics. The simple tag system makes mechanics independent of the parts man, and at the same time the parts man has complete information for the perpetual inventory records. The presence of a full-time man assures proper care of the parts (as for weatherproofing). Lastly, perpetual inventory gives us the time cycle of the rate of usage of any given part, which is of help in re-ordering and thus precludes downtime of equipment on account of lacking items. In short, our replacement parts department is set up to dovetail with the main objective of the organization and the physical job—to keep the stream of materials moving.

Let Highway share your handling problems!

Whatever your materials handling problems, Highway equipment engineers will be glad to survey your needs and make time and money-saving recommendations.
Just write, wire or phone—today!

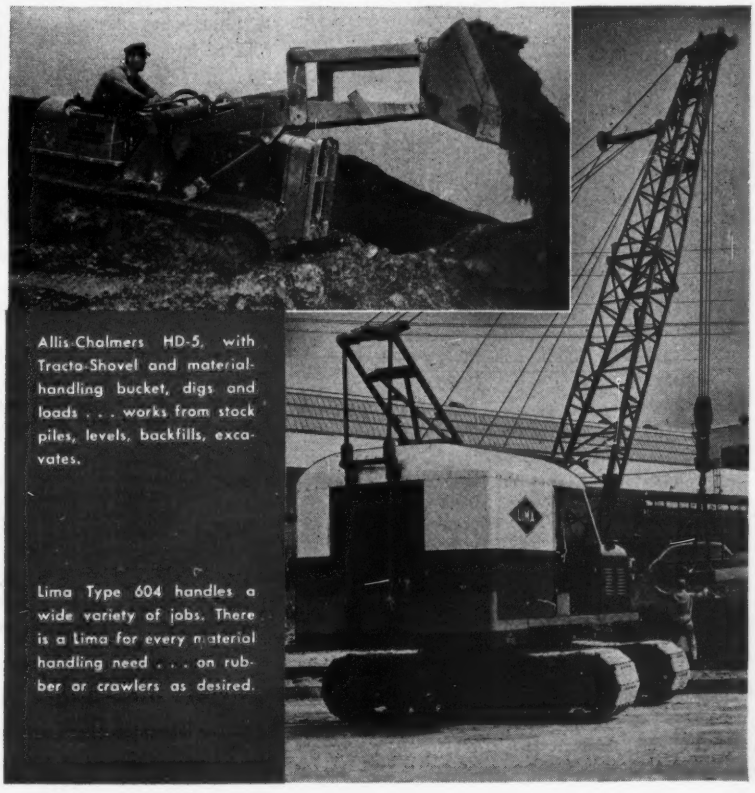
A-2247

Highway EQUIPMENT COMPANY

6465 Hamilton Ave. Pittsburgh, Pa.
840 South 19th St. Harrisburg, Pa.

Manufacturer of special industrial machinery

Allis-Chalmers • Jaeger • Baker • Gar Wood • Hough • Master • Thor • Wayne Crane • General Motors Diesel Engines • Lima Shovels, Cranes, Draglines



Allis-Chalmers HD-5, with Tracto-Shovel and material-handling bucket, digs and loads . . . works from stock piles, levels, backfills, excavates.

Lima Type 604 handles a wide variety of jobs. There is a Lima for every material handling need . . . on rubber or crawlers as desired.

FLOW ENGINEERING DATA PAGE

* Axle sizes marked by this asterisk are the preferred standard.
Hub sizes are standard for cast or fabricated wheels with or without rubber.
different category of equipment each month.

WHEEL STANDARDS

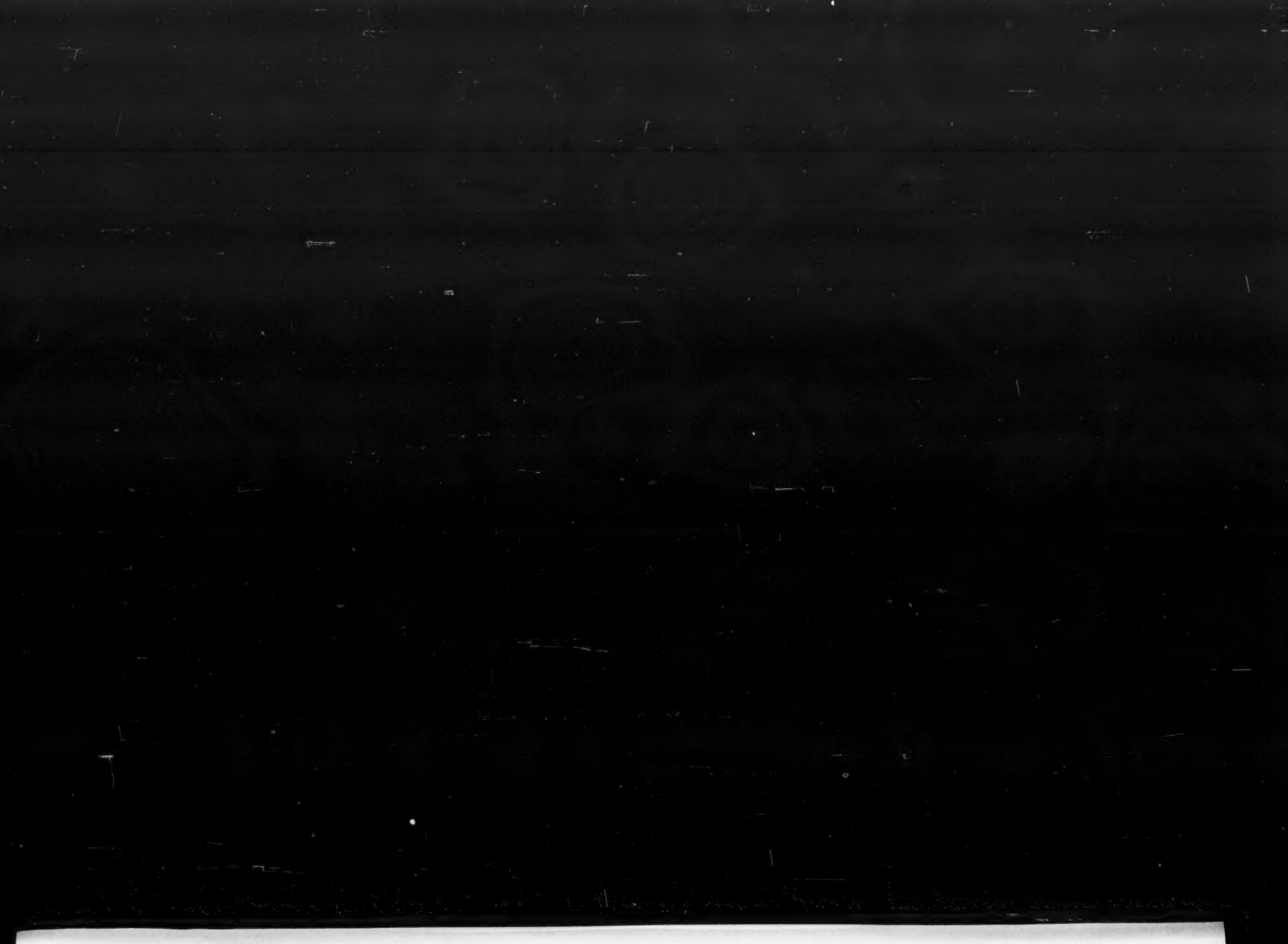
For Molded-On Rubber-Tired Casters and Factory Truck Wheels as adopted by The Caster and Floor Truck Mfgrs. Assn.

Outside Diameter of Rubber & Width at Base	Max. Wheel Diameter & Rim Width	Overall Hub Length	Axle Size Diameters	Diameter of Hole in Hub (or Hub Bore)
4"x1½"	2.78x1½"	1¾"	½", ⅝"*	1-1/16"
5"x1½"	3¾x1½"	2¼"	⅝", ¾"*	1-3/16"
6x1½"	4.56x1½"	2¼"	⅝", ¾"*	1-3/16"
6x2"	4¼x2"	2¼"	¾"*, ⅞", 1"	1-7/16"
6x3"	4.56x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
7x2"	5¼x2"	2¼"	¾"*, ⅞", 1"	1-7/16"
7x3"	5¼x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
8x2"	6¼x2"	2¼"	¾"*, ⅞", 1"	1-7/16"
8x2½"	6¼x2½"	2¾"	1"*, 1⅛", 1¼"	1-15/16"
8x3"	6x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
9x2"	7x2"	2¼"	¾"*, ⅞", 1"	1-7/16"
9x2½"	7x2½"	2¾"	1"*, 1⅛", 1¼"	1-15/16"
9x3"	7x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
10x2½"	8x2½"	2¾"	1"*, 1⅛", 1¼"	1-15/16"
10x3"	8x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
10x4"	8x4"	4¼"	1¼"*	2-7/16"
11x2½"	9x2½"	2¾"	1"*, 1⅛", 1¼"	1-15/16"
12x2½"	10x2½"	2¾"	1"*, 1⅛", 1¼"	1-15/16"
12x3"	10x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
12x3½"	10x3½"	4¼"	1¼"*	2-7/16"
12x4"	10x4"	4¼"	1¼"*	2-7/16"
14x3"	12x3"	3¼"	1"*, 1⅛", 1¼"	1-15/16"
16x3"	14x3"	3¼"	1¼"*	2-7/16"
16x4"	14x4"	5¼"	1¼"*	2-7/16"
18x2½"	16x2½"	3¼"	1¼"*	2-7/16"
18x3"	16x3"	3¼"	1¼"*	2-7/16"
20x3"	18x3"	4¼"	1¼"*	2-7/16"

*Axle sizes marked by this asterisk are the preferred standard.

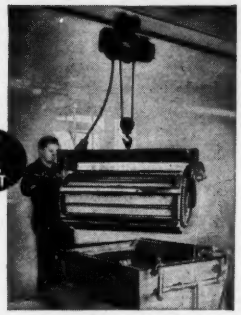
Hub sizes are standard for cast or fabricated wheels with or without rubber.

2-7/16" bore for 1¼" axle is optional instead of 1-15/16"



"Recovered 3 TIMES Its Cost in 2 YEARS Use . . . No Repairs or Replacements"*

THE Titan ELECTRIC HOIST



Handling material through the air saves floor space for production.

*Unsolicited statement made by a Michigan User, about a Titan Hoist.

The Titan is a powerful *little* hoist built with *Big* hoist features including Cone Worm Drive, Electric Brake, and Steel Wire Hoisting Rope.

*You can get profits in the same way with Titan Hoists handling things in your plant.

Ask For BULLETIN 801A on the Titan Hoist; also Bulletin 695 on light overhead cranes.

THE DETROIT Titan ELECTRIC HOIST manufactured by

DETROIT HOIST & MACHINE CO.

8202 Morrow St. • Detroit 11, Mich.

ONLY COLES CRANES HAVE A

SAFE-LOAD INDICATOR

PLUS

- ✔ One Man Control
- ✔ Reversible Steering (Patented)
- ✔ Low Maintenance Cost!

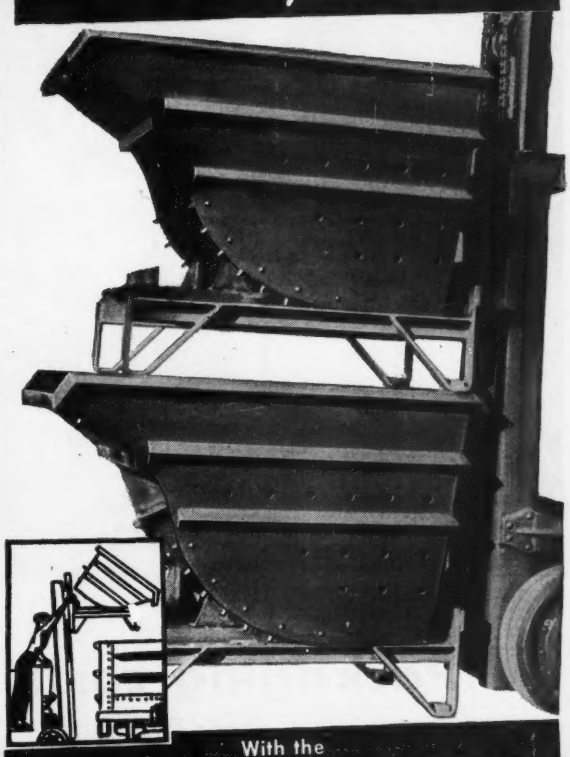
The Safe-Load Indicator

COLES "*Safe-load*" indicator prevents operator from lifting any loads in excess of rated load at any given point of radius. A warning light directs attention immediately to an overload. Current is cut-off automatically if operation is continued.

• Coles "*Safe-Load*" indicator provides all around protection to operator as well as to expensive equipment. The unobstructed view from operators cab at front of superstructure furnishes complete visibility, "ONE-MAN" trigger-quick control to all four motions: Hoisting, Swinging, Derricking, Traveling. The four simple controls can be worked simultaneously. Coles Cranes' rugged "*battleship*" construction gives long-life service at lowest maintenance cost—combined with fool-proof operation. Ease of maneuverability, including the Cole patented reversible steering are just a few of the many advantages of the Cole Mobile Crane. "Know-How" gained from 70 years Crane manufacturing experience, Plus . . . World wide distribution has made COLES Cranes a leader. Available in several models in capacities 1½ ton to 15 ton. Write us for prices, literature or the name of your nearest dealer. COLES CRANES, Inc., 4307 S. Paulina Street, Chicago 9, Illinois.

COLES CRANES INCORPORATED

Save 50% LABOR-TIME and $pace



With the *self-dumping* ROURA HOPPER

Exclusive Instant Release (Patent Pending) Handle Speeds Dumping from Lift Truck

Handling wet or dry, hot or cold, bulky materials quickly and easily, the ROURA is simple to operate—only one man is required for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Owens-Illinois Glass, Corning Glass, National Fireproofing, General Motors, Ford, Chrysler, American Brake Shoe, General Electric, Westinghouse, Western Electric, American Steel Foundries, International Harvester, John Deere, etc.

By a simple lift of the exclusive release handle, the ROURA HOPPER dumps, rights and locks itself securely. Sizes—½, ¾, 1, 1½ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

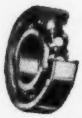
Write today for detailed brochure.
"You Can Save 50% Labor-Time"

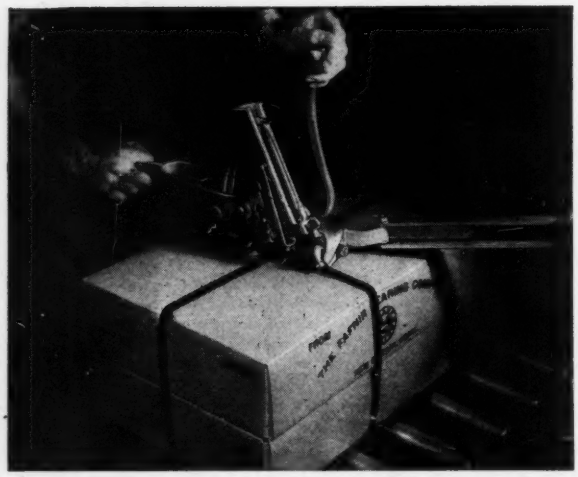
ROURA IRON WORKS, Inc.

1411 Woodland Ave. Detroit 11, Mich.

"Packaging costs cut up to 25% with Stanley Steel Strapping"

— Says The Fafnir Bearing Co.





Up to 25% saving on packaging cost—that's the record Stanley Steel Strapping System has made at The Fafnir Bearing Co. And it's typical of the way Steel Strapping can shave dollars and cents from packaging costs of almost any product.

Stanley Steel Strapping is quick and easy to apply —saves man-hours and materials—gives greater protection to goods in transit. System includes tools, reels and accessories—everything you need for *your* application. Write for full details or demonstration now! The Stanley Works, Steel Strapping Div., 203 Lake St., New Britain, Connecticut.

STEEL STRAPPING AND CAR BANDING SYSTEMS

STANLEY

Reg. U.S. Pat. Off.

HARDWARE • HAND TOOLS • ELECTRIC TOOLS • STEEL STRAPPING

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filing and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

CONTENTS

A NEAT, SAFE PACKAGE—for a heavy assembly. Simple carton design and handling techniques have made it possible. This manufacturer of bottled beverage dispensers has planned the flow through packaging with the same care as in the production departments. 60

IT'S IN THE BAG—the use of cloth and multi-wall paper containers for cement has satisfied several exacting requirements for handling, storage and shipping. Six bag filling machines have a combined capacity of over 35,000 94-lb. bags per eight-hour day.... 62

GOOD CONVEYOR LAYOUT FOR TOBACCO PACKAGING. One of the country's major packers of loose leaf tobacco has coordinated good conveyor layout with machine layout. Effective use is made of manufacturing areas. 65

Simple Carton Design and Handling Techniques Make . . .

A Neat, Safe Package

For a Heavy Assembly

Automatic coin coolers for Coca-Cola, manufactured by The Vendo Company of Kansas City, Mo., are handled in the packing department with the same attention to material handling as in assembly. An article describing the final assembly of these machines appears elsewhere in this issue.*

By R. J. ALTON
Plant Manager
The Vendo Company, Kansas City, Mo.

THE coolers are packed in a heavy corrugated carton of special design. At the terminal of the refrigeration test conveyor, the dispensers are shunted to one or both gravity roller lines which lead to the packing stations. This dual arrangement makes it possible to run two models at the same time, and permits convenient separation for packing materials.

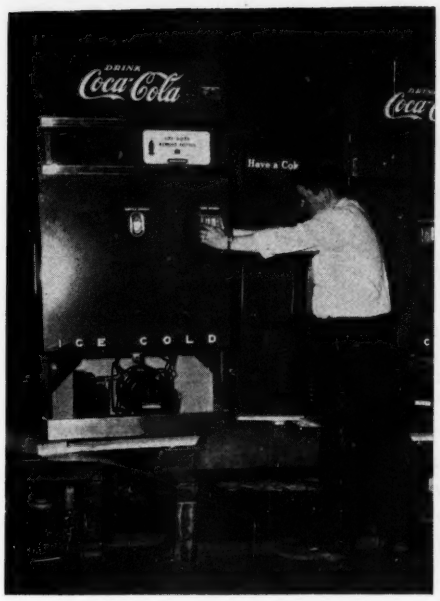
The crate base that was attached to the bottom of the cabinet at the beginning of the assembly, while serving as protection during its travel on the conveyor line, now is useful as a sturdy foundation for the package.

Before the four-sided body of the corrugated carton (open at top and bottom) can be slipped over the cabinet, it is first necessary to place a carton bottom below the wooden crate base. This is done by means of a six-inch gap in the gravity roller line, under which a supply of corrugated carton bottoms is maintained. The approaching cabinet is stopped just before the gap. A flap of the corrugated bottom is then drawn up between the opening on the rollers, and the cabinet is then rolled ahead. At the same time the corrugated material is advanced and the crate base is spotted on it—without need of lifting the heavy cooler.

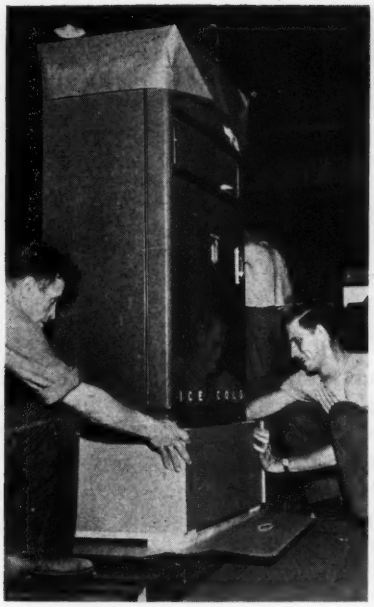
Steel Strapping for Security

At the packing station, a waxed paper cap and protective strips are put in place, then the squared

*"Coca-Cola" and its abbreviation "Coke" are the registered trade-marks which distinguish the product of The Coca-Cola Company.



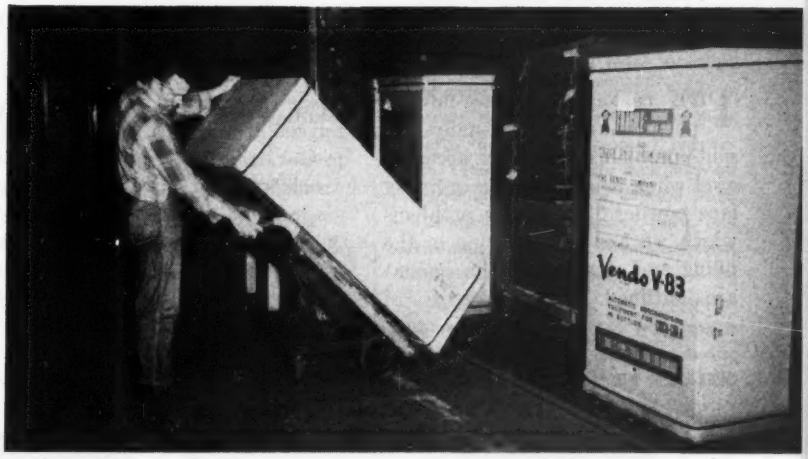
▲ **CARTON BOTTOM** is placed under unit (note gap) without need of lifting the 400 lb. cabinet.



WAXED PAPER CAP protects top. Operators are applying spacers for lower part of carton. ▲

STEEL STRAPPING is applied with rotary air tool. Article describes locking of scored flaps. ▲

EASY MANIPULATION of packed units is obtained with third-wheel track attachment. ▶



sleeve of the carton is slipped over the unit, followed by the addition of the top. The scored flaps at both ends of the carton are folded together with the flaps of the carton top and bottom. The folding of the two gives an interlocking effect resembling a sheet metal lock seam. The folding completed, the corrugated material is momentarily held in place by hand clamps with teeth, while a ½" band of steel strapping is tightened with an air tool. The procedure is the same top and bottom.

The packed units are pushed to floor level on gravity roller lines, whence they are picked up by a two-wheel hand truck with a third-wheel attachment, as shown in one of the exhibits. The attachment is clamped to the axle of the truck and to the base of the handles while an adjustable arm permits the truck to be tilted to any desirable angle. Resting on a three-point support the load does not require the operator to hold it in balance and the unit can be left on the truck without the danger of falling.

The distance to the nearby rail and truck docks is short, and hence the hand truck method is well adapted to this phase of the operation. The vending machines are loaded single deck, and two operators can load a standard freight car in 30 minutes. This does not include time for shoring.

The packing and loading facilities have been designed and equipped to maintain a rate of 400 units per day, which is the rate in the assembly operations.

It's in the bag

The methods adopted by the Standard Portland Cement Div. have met several problems in whose solution the types of bags chosen figured prominently: 1. Containers must prevent product loss. 2. Protection against normal moisture during storage periods. 3. A sturdy container to withstand rough handling. 4. Minimum in-plant handlings to prevent damaged or misshapen bags. 5. Effective dust removal, both as protection for operators and prevention of waste.

By G. R. DUMOND

Plant Superintendent
Standard Portland Cement Division,
Diamond Alkali Co., Painesville, Ohio.

THE packaging of free-flowing powdered material usually presents problems, which are accentuated when it is finer than ordinary face powder. The major problems which we had to overcome in the filling and shipping of the cement are outlined above. Factors of plant layout, flow planning, and special containers were all-important in devising productive procedures with minimum waste of motion or material.

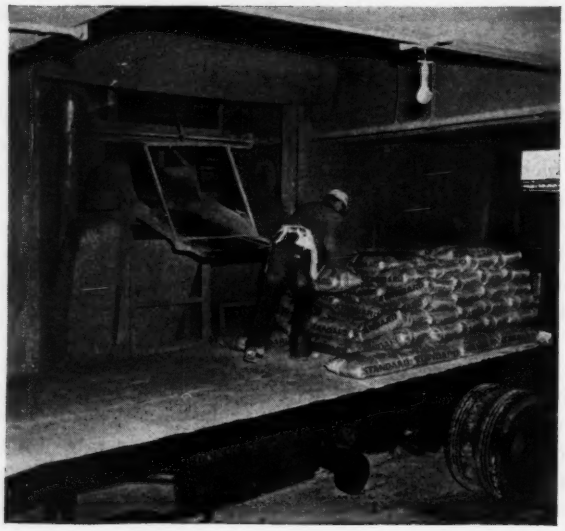
Multi-Wall Paper Bags, Cotton Sacks

Our shipments are made by truck and rail cars, either bagged or in bulk. The containers which we decided on were four-ply, multi-wall paper bags and also cotton bags. While both are designed to prevent product loss, they are used for different types of orders.

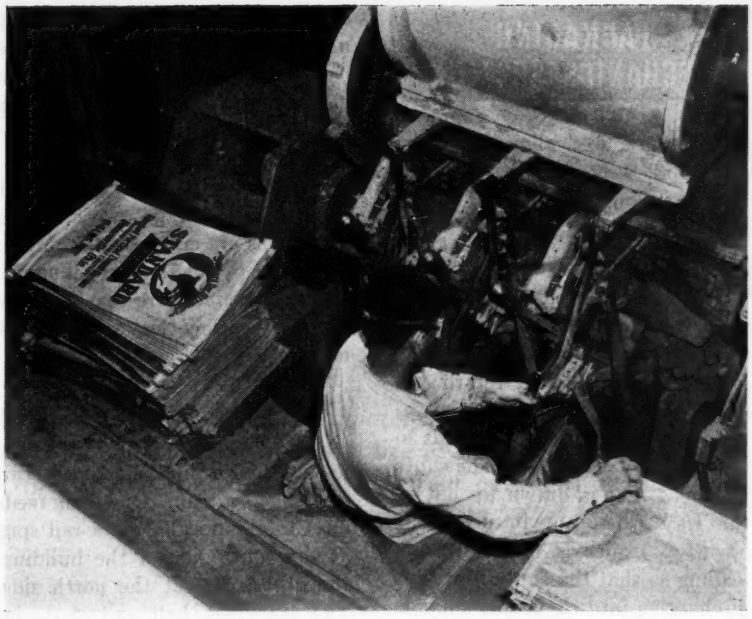
When the bag will be subjected to periods of storage, such as in dealers' stores, paper containers are designated. Two of these four walls are of 50-lb. stock, (on the outside), and two of 40-lb stock, with air space between. Their construction combines strength with protection against normal moisture. They are discarded after use.

Cotton bags are manufactured with a very fine weave, which also

OPERATOR RECEIVES bags via a chute and spots them on highway truck. Note scale in rear.



TWO-WHEEL HAND TRUCK carries bags from chute into rail cars. Two trucks work as a team.



THREE-SPOUT AUTOMATIC filling machine. Operator pulls handle to release bag onto conveyor which delivers to highway carriers.

prevents loss through sifting. They are shipped to contractors and product manufacturers, where extended periods of storage are not a factor. They may be returned to the company, and are often used eight or 10 times.

Both types of bags have valve-type sleeves located in the upper left-hand corner for use during filling. The corner is folded back into the container to form a 6"-long sleeve. When filled, the bag is inverted and the cement pushes the sleeve against the bottom seam, closing it.

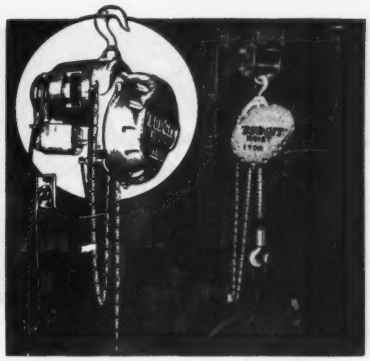
Pneumatic Conveying System

Bulk cement is transported by pneumatic conveying systems from the finishing mill to one of 24 large storage silos with a capacity of 12,000 barrels each. (Nine smaller ones hold 3000 barrels each.) One barrel is equal to 376 lb. When an order is received, a pump, mounted on rails, is hooked up to the designated silo and the cement pumped to the pack-house or to one of three bulk bins. The pack-house bins have a capacity of over 33,000 lb. each. Each of two of the bulk bins holds 188,000 lb., the other 33,840 lb.

The pack-house, designated for package shipments, is made up of two buildings—one for shipments by highway trucks and one for rail shipments. The truck loading building, an inverted U-shaped structure, houses two filling machines. They are located on opposite sides of the second floor and feed the bagged material via gravity rollers and chutes to the vehicles in the archway below.

The filling operator sits in front of the three-spout machine, which is located in a pit. The filling spouts are at waist height and the release pedal is designed to be reached while the operator is in a sitting position. Supplies of paper and/or cotton bags are maintained on two sides of the machine.

The operator places the sleeve over the spout and pulls a lever to start the flow. When the predetermined amount (94 lb.) has been discharged, the filling shuts off, the saddle on which the bag rests drops, and the operator releases the bag onto a conveyor below. A bag is filled and released in seven seconds. To avoid under-weight bags, the saddle locks at the start of the operation and cannot drop until the bag has been completely filled. Weight-controlled filling and an ef-



These savings . . .

With wages high and business in its present condition, the double savings made by a portable 'Budgit' Electric Hoist — wherever lifting is an important part of production — are more vitally important than ever.

When a 'Budgit' Electric Hoist does the lifting, many valuable production minutes are saved every working hour. Flow through production, assembly, and inspection lines increases in pace — hence, greater production with lower operating costs. Workers find their jobs made easier when a 'Budgit' Hoist does the lifting so their energy goes into increased production. Then, too, they are free from all danger of sprain, strain, rupture when they no longer lift heavy parts and that means a savings in compensation costs. There are no installation costs to a 'Budgit' Hoist — it's a complete lifting unit in itself. You just hang it up, plug into the nearest electric socket, and it's ready for work.

These are the savings you make in production and compensation costs, in time and operating costs when a fast-lifting, easy-to-operate 'Budgit' Electric Hoist handles your lifting jobs.

Made in sizes to lift 250, 500, 1000, 2000 and 4000 lbs. Prices start at $119. Write for Bulletin No. 391.

'BUDGIT' *Hoists*

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of Ashcroft Gauges, Hancock Valves. Consolidated Safety and Relief Valves and 'American' industrial instruments.

Albion QUALITY CASTERS
"THE BEST FOR LESS"
for every Industrial use

With Patent-Pending Rolled-In Ball Race

HEAVY DUTY CASTERS in Drop Forged Steel with Genuine Timken Thrust Bearing. 6" up to 12" Wheel Diameters.

MEDIUM DUTY CASTERS in Semi-steel and Drop Forged Steel. Double Ball Race. 3" up to 8" Wheel Diameters.

LIGHT DUTY CASTERS in Semi-steel and Drop Forged Steel. Double and Single Ball Race. 3" up to 6" Wheel Diameters.

Available with Semi-Steel, Solid Rubber, Plastic, and Moldon Rubber Wheels.

TRAILER CASTERS—9 x 11 Top Plate—With 8", 10", and 12" Wheels.

SEND FOR YOUR CATALOGUE & PRICES TODAY

ALBION INDUSTRIES, INCORPORATED
ALBION, MICHIGAN
Sales Offices in Principal Cities

fective work level allow one operator to fill three bags in a continuous operation.

Belt and Roller Conveyors, Chutes

The 30" x 15' rubber belt conveyor which receives the outgoing bags discharges onto 30-in.-wide gravity rollers (which retard the speed of the bags), then to a five-ft.-long metal chute which feeds to the delivery truck below. The chute is hinged and is drawn up out of the way when not in use. The open-top trailer is moved during loading so that the chute is always discharging into the loader's hands at the place where the bag is to be spotted. The product thus comes to the operator, who does not have to walk. This method enables one man to spot a load of 280 bags (26,320 lb.) in 25 minutes.

Bagging is done only for direct delivery to outgoing vehicles. This means there is no rehandling of the bags, and two men are adequate for the entire operation (from filling to outbound truck). The benefits from this method are: 1. Fast loading of delivery vehicles. 2. Without intermediate storage, two handling operations are eliminated. 3. Maximum unit production per manhour. 4. The containers are touched only once after they leave the filling machine.

Package Loading for Rail Cars

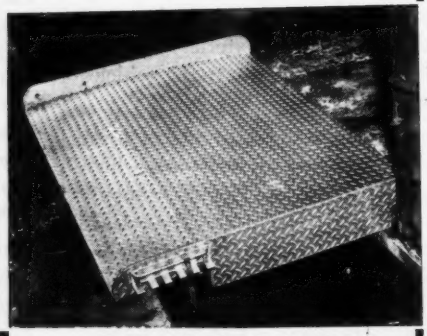
The building for car loading houses four filling machines, two working as a team. One team feeds bags to cars located on a rail spur at the south side of the building, the other, cars at the north side. The machines, belt and chute installations are similar to the ones described for trucks.

The method of loading cars differs since the cars have closed tops. From the chute, an operator places the bags on two-wheel hand trucks, which carry eight bags at a time into the cars (a matter of a few feet). These trucks have an eight-in.-wide nose for bag handling. The bags are placed on the truck at a slight angle to the frame to make a secure load. In the box car, the truck is pushed forward on its nose so that the stack of eight bags falls into place. This minimizes individual handling of the bags in the car. Two hand trucks are sufficient to feed the bags to the rail car as fast as they come from the filling machines. Five operators load a rail car of 1200 bags in approximately one hour. Portable scales are installed at the discharge end of all chutes for spot-checking the weight.

Dust removal is important during filling to protect operators and prevent waste. Suction devices are located on the filling machines just behind the spouts. The vacuum draws off any airborne material and returns it to the feeding bins. The contents from broken bags are dumped into a grated chute and

(Turn to page 68)

PENCO
IS THE ONLY
MAGNESIUM BRIDGE RAMP
WITH THE
SAFETY LOCKING DEVICE



Lightweight—Easy To Handle

NOW CONSTRUCTED IN
3,000 lbs.—6,000 lbs.—8,000 lbs.
AND 10,000 lbs. CAPACITIES
Write for FREE engineering bulletin 485-F

PENCO ENGINEERING CO.
725 - 2nd Street, San Francisco, California

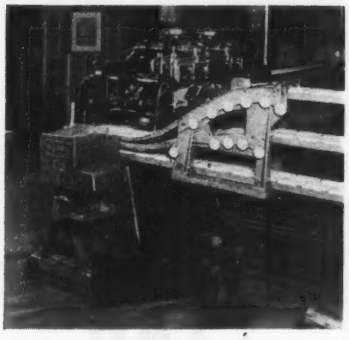
Good Conveyor Layout in tobacco packaging

Good conveyor layout is coordinated with machine layout for top packaging production and effective use of manufacturing areas. Triple-deck belt conveyors position four packages on each level for one-dozen packs.

THE loose leaf tobacco industry packages in excess of 42,000,000 lb. of tobacco annually. One of the country's major packers is the Pinkerton Tobacco Co., Toledo, which receives the raw material from the growers of cigar leaf tobacco and cures and ages it in its warehouses. The company's Red Man brand is nationally distributed.

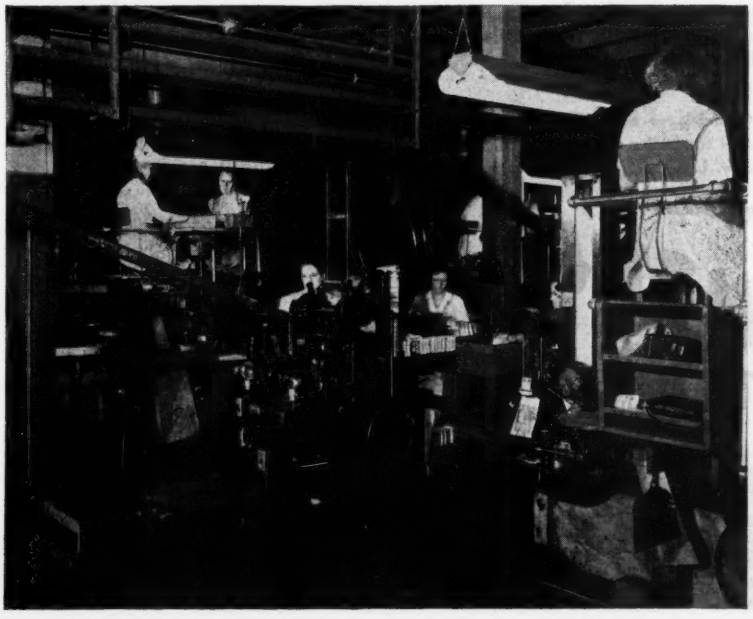
Automatic Filling and Sealing Machines

The packing room is approximately 100′ x 150′ and contains several batteries of automatic filling and sealing machines, three constituting one battery. Two units fill the bags and affix the revenue stamp, then feed the containers to the wrapping machine. To insure freshness, the tobacco is packaged in parafin-lined 3½″ x 5″ manila bags, to which is added an outer-wrap of cellophane. The individual packages are finally combined in larger Kraft-wrapped units of 12 each for convenient case loading.



CONVEYORS ARRIVE in triple-deck arrangement from filling room. A ram pushes four bags from each belt into wrapping machine.

TWO AUTOMATIC FILLING machines feed to cellophane wrapping machine, center. At left, belt conveyor which leads to packing in next room.



From the magazine of the filling machine the empty bags drop into a four-pocket rotary bag feeder. As the bags revolve, they go through the following operations. 1. Fingers descend and open the container. 2. Two operators seated above the machine deposit tobacco into small drop-bottom hoppers. When the proper amount has been added, the doors drop and the material is fed into the machine, then into the bags. 3. Pusher rams descend and pack the product to obtain a firm package. 4. The bags are dropped from the rotary feeder into a six-pocket revolving mold. Here one set of fingers tucks in the side flaps and another set folds over the top flaps.

The closed bags are raised into the next machine where a revenue stamp is picked up by fingers,

NEW ANOTHER MATERIALS HANDLING FIRST

RIDING TYPE "JACKLIFT" ELECTRIC TRUCK

Now you can ride the walking type "JackLift"

SAVES LEG WORK on the long hauls . . . Saves money all around the plant . . . on regular runs . . . in cramped quarters or narrow aisles.

REDUCE COSTS with this easy-maneuvering "Standrive" dependable "JackLift" Electric Truck. Operator rides or walks. Operates truck with handle in every position . . . All controls in the handle head . . . Instant smooth-action electric brake.

Platform and Pallet models — capacities 4000 and 6000 lbs. Tractor model for trailer trucks. Low maintenance. High efficiency. Long life.

MULTIPLY MANPOWER LEWIS-SHEPARD

A "MASTER" LINE PRODUCT

For complete information write...

LEWIS-SHEPARD PRODUCTS INC.

MIDWEST PLANT CRAWFORDSVILLE, IND.

115 WALNUT ST., WATERTOWN 72, MASS.

REPRESENTATIVES IN PRINCIPAL CITIES CONSULT YOUR PHONE DIRECTORY

"STANDRIVE" POWER FORK TRUCKS • "JACKSTACKER" ELECTRIC TIERING TRUCKS
"JACKLIFT" ELECTRIC TRUCKS • STACKERS • CRANES • SKIDS • PALLETS
HYDRAULIC AND MECHANICAL HANDLIFT TRUCKS • FLOOR TRUCKS • RACKS

passed across glue rolls and affixed to the top of the package. The units then pass between flared guides which apply pressure to both top and sides.

Importance of Weight Control

The bags drop onto chain-mounted scales which travel in a circular course under two stationary arms. If the container is heavy enough, it depresses the scale sufficiently to pass beneath the first guide. If the package is light it

MASTER CARTONS feed through an automatic top and bottom case sealer. Belt-powered rollers apply pressure to glued ends.

strikes the guide and drops off into a receptacle. If the container is overweight, it depresses the scale too much and rides under the second guide. This guide is placed to receive the packages and kick them off onto a table for transfer to wrapping. If the bag passes beneath the guide, it is diverted by a third arm into another receptacle. This extremely accurate system is designed to make all packages conform to the weight shown on the revenue stamp.

Packages of proper weight feed onto a small table located alongside the machine and are held in an upright position between two flared guides. When a dozen or more are accumulated, an operator places them in the magazine feed of the cellophane wrapping machine. The machines are located near enough to each other so that no walking is required.

Two filling and sealing machines feed to one cellophane wrapping machine, since the wrapping rate is approximately twice that of the

filling operation. At the wrapping machine, clear cellophane is passed around the package, the ends are folded and heat sealed. The bags are then fed up to the top of a magazine where they are blown by a jet of air onto a four-in.-wide belt conveyor.

Triple-Deck Belts Position Units for Wrapping

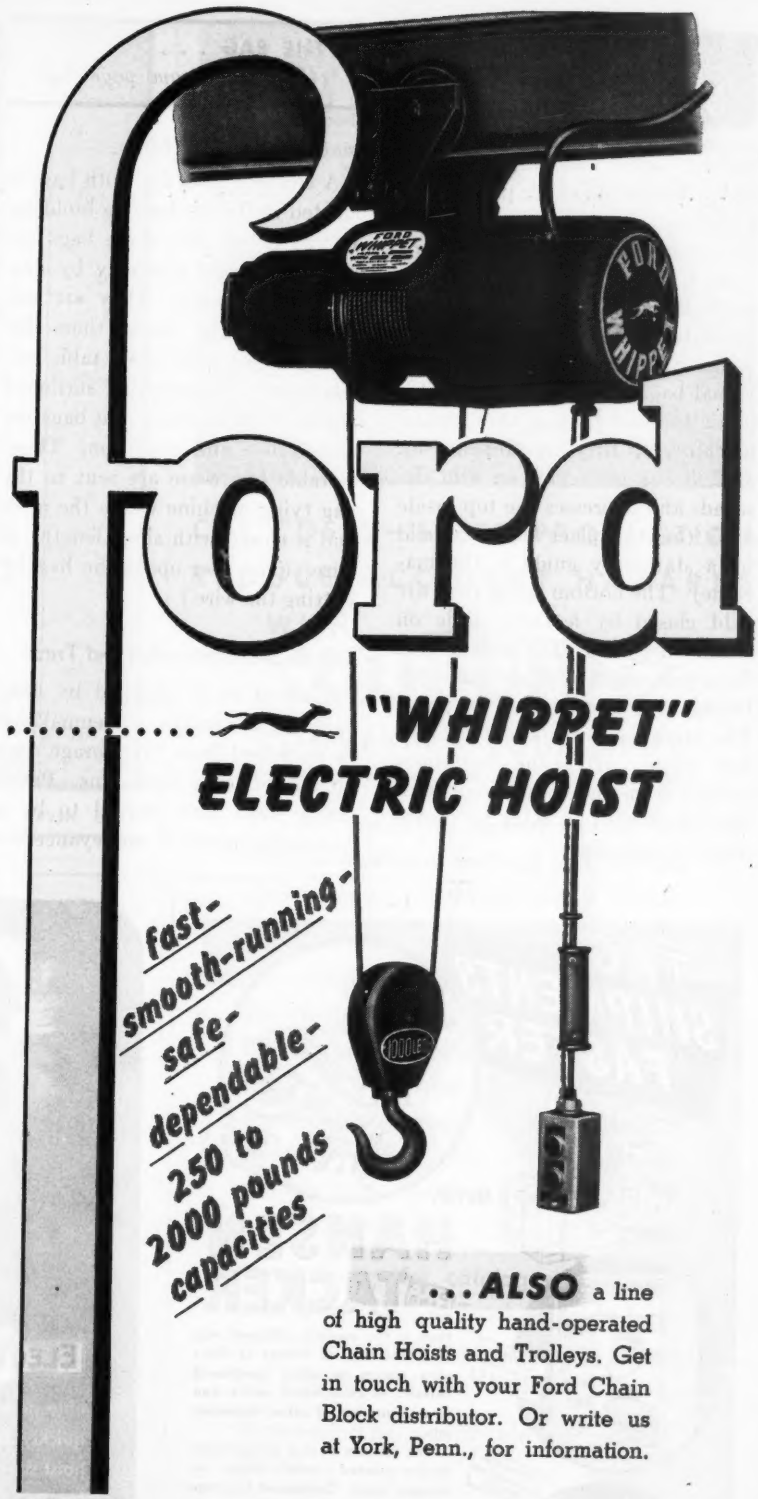
The conveyor travels overhead a distance of approximately 100 ft. into the next room, then descends and feeds to the paper wrapping machine, which makes up 12-unit packages. One belt feeds from each of the battery of cellophane wrapping machines to this station. On route, each set of two of the narrow belts converges on a nine-in.-wide conveyor. A total of three of these conveyors, arranged in triple-deck fashion, ultimately feed to the paper wrapping machine.

The individual packages arrive in a flat position at its feed end, as shown, and are halted by end stops. Across from the belt is a ram. The belt area before the machine accommodates four packages—on each of the three levels. Thus 12 units are in position to be wrapped at each pass of the ram. Pre-cut sizes of Kraft paper are passed around each one-dozen unit. The large packages continue on a 20-in.-wide belt where guides fold in the inner flaps, then the outer ones.

On each side of the belt, rollers pick up labels, pass them across glue rolls and affix them to the two ends of the package. Thus the product is both identified and sealed. Two 4″ x 10′ belts, one mounted on each side, move the package along and apply pressure to the freshly glued ends.

Automatic Top and Bottom Case Sealer

The 12-package units pass onto a 12″ x 7′ canvas belt which dis-


ford
"WHIPPET"
ELECTRIC HOIST
fast-
smooth-running-
safe-
dependable-
250 to
2000 pounds
capacities
...ALSO a line of high quality hand-operated Chain Hoists and Trolleys. Get in touch with your Ford Chain Block distributor. Or write us at York, Penn., for information.
ACCO
York, Pa., Chicago, Denver, Los Angeles, Philadelphia, Portland, San Francisco, Bridgeport, Conn.
FORD CHAIN BLOCK DIVISION
AMERICAN CHAIN & CABLE
TRADE MARK
In Business for Your Safety

charges onto an accumulation table. Twelve units are placed into a master carton. In assembling these containers, the bottoms are formed but not sealed. The top inside flaps are folded down, with the outside flaps left upright.

The cartons containing 144 individual bags are placed in an automatic top and bottom case sealing machine. As they are propelled by a push bar conveyor, an arm descends and depresses the top inside flaps (once in place they are held by a stationary guide in the machine). The bottom inside flaps are held closed by a metal slide on which they ride. The outside top flaps pass under glue rolls and are folded over and pressed in place. The process is repeated on the bottom flaps. After the containers emerge from the compression unit they are loaded on skids for movement to shipping.

IN THE BAG . . .

(Continued from page 64)

sent to the feeding bins.

A cleaning tank for cloth bags is located in the car loading building. It was noted that these bags are returned to the company by customers for re-use. They are air-cleaned in the tank, then discharged onto a 36″ x 40′ table belt conveyor. Inspectors, stationed along the belt, check the bags for appearance and condition. Those suitable for re-use are sent to the bag tying machine where the open end is closed with short lengths of wire. (The user opens the bag by cutting the wire.)

Bulk Shipments—Rail and Truck

Cement to be shipped by bulk rail cars and trucks is pneumatically conveyed from the storage silos to one of three bulk bins. Pneumatic lines have proved to be a successful means of conveyance because they prevent escape of the very fine powder. The outgoing carrier is spotted beneath the feeding spout of the bins and the contents flow by gravity into the vehicle. Some air is forced into the bin to agitate the cement and prevent it from clinging to the sides.

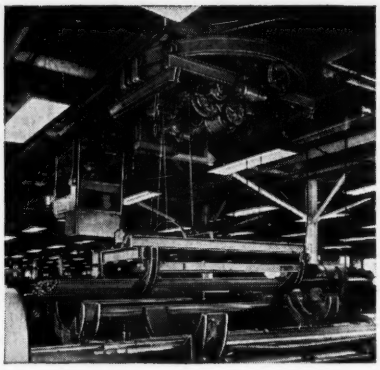
We have successfully eliminated the problems enumerated in the opening paragraphs of this article. Our six bag filling machines have a combined capacity of over 35,000 94-lb. bags per eight-hour day. Strategic placement of equipment with resultant motion economy has made possible the loading of outgoing carriers as fast as the machines can deliver the bags.

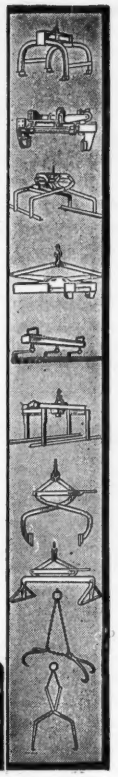
NEW 1949-1950 DIRECTORY

The first issue of the FLOW directory of Material Handling Equipment and Accessories was received with great acclaim, and now orders are being accepted for the second improved issue at $5 per copy. Several sections have been expanded and new ones added. Send your order now.

TAG SHIPMENTS FASTER
HANSEN TACKER MODEL T-6
WITH
HANSEN
ONE-HAND TACKER
LINING SHIPPING CRATES
TAGGING and LABELING BOXES
Here is the modern, efficient way to attach tags or linings to shipping crates, to stitch cardboard cartons, to close heavy sacks, and to do hundreds of other fastening jobs.
The Hansen Tacker drives home double-pointed tacks, even in hardest wood. Compound leverage and powerful spring do the work for you. Operate the tacker with one hand, driving tacks as rapidly as you can grip. Holds scores of tacks, and reloads almost instantly. Choose from many models.
Write for full details
A. L. HANSEN MFG CO

ELECTROLIFT
ELECTROLIFT saves handling costs because it uses little power, requires less labor and does the job quickly. Many users report this worm-drive electric hoist saves them more than enough money to pay for its installation. There's an ElectroLift model to meet your capacity (up to 6 tons), speed and plant layout needs. Write or phone your nearest ElectroLift representative — listed in the classified directory — or:
ELECTROLIFT, INC., 30 Church Street, New York 7, N. Y.





25% MORE Screw Machines In The Same Space!

Made possible by the use of Mansaver Grabs and a Louden overhead system in the screw machine department of a large, nationally known firm. Machines were placed closer together because aisle space required for floor trucking was eliminated. Many other savings were also obtained. Write for Bulletin No. 664.

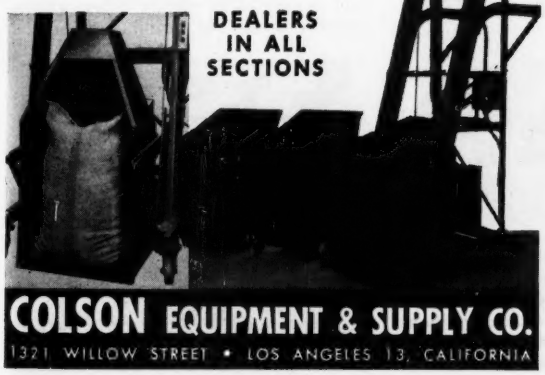
COMPLETE YOUR CRANES WITH

MANSAVER GRABS

MANSAVER INDUSTRIES, INC., 3103 EAST ST., NEW HAVEN, CONN.

CESCO DUMPER HANDLES BAGS, DRUMS AND BULK

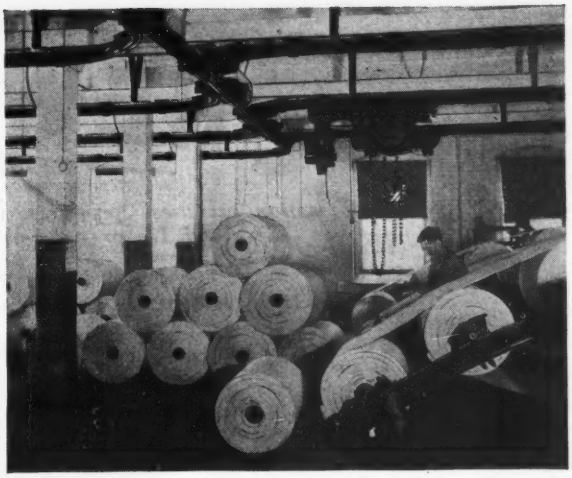
MULTI-PURPOSE DUMPERS for dumping bags, bulk or drums, as well as single-purpose types save handling time and reduce accidents. Dumping heights range from 5 to 12 ft. Special sizes made on order. Have lifting capacity of 500 lbs.; handle up to 100 loads per hr. ½ H.P. motor controlled by push button. Immediate delivery. Write for 8-page catalog.



DEALERS IN ALL SECTIONS

COLSON EQUIPMENT & SUPPLY CO.

1321 WILLOW STREET • LOS ANGELES 13, CALIFORNIA



CUT COSTS—SPEED PRODUCTION REDUCE ACCIDENT HAZARDS WITH COBURN CONVEYING EQUIPMENT

If your processing operations call for lifting or moving of loads up to 3000 lbs., Coburn can eliminate many "back-breaking" problems.

The sectional design of Coburn Enclosed Overhead Monorail permits easy installation, rearrangement or extension, as required. It can be used with hand or electric hoist; does not obstruct floor space; requires very little headroom; permits easy spotting of work directly over machines.

Write today for catalog showing full details on Enclosed Track, Bracket-Type Jib Cranes, Travelling Cranes and Monorail installations.

Engineering help available without obligation.

COBURN PRODUCTS DEPARTMENT

WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORP.

General Office—500 Fifth Avenue, New York 18, N. Y.
Sales Engineering—56 Sterling Street, Clinton, Mass.

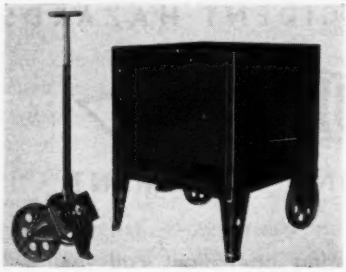
CF&I

NEW PRODUCTS

For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

SCRAP TRUCK

NP1—This scrap truck, manufactured by Factory Service Co., is designed for use with revolving head fork trucks, and is a new standard unit in the Turner System of Material Handling. It consists of a bin-like superstructure of heavy steel plate panels welded to a flat steel deck. Fabricated steel channels, built to accommodate the forks of standard fork trucks, extend from front to rear panels just above



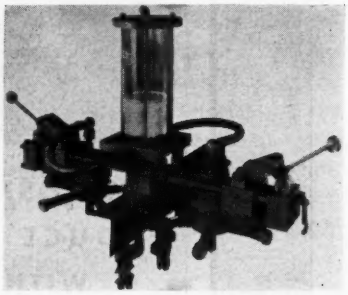
the Transport deck. Cast steel or rubber tired wheels (equipped with pressure lubrication fittings) and antifriction bearings are the only moving parts. The Turner hand Jimmy converts the stationary bin to an easily maneuverable hand truck. Capacities are available up to 22 cu. ft. Use the card bound into this issue to get complete details.

TRUCK CRANE AND CARRIER

NP2—The Northwest Engineering Co. has announced a new truck crane and carrier combination. The equipment has a capacity of 20 tons with a minimum boom length of 30 ft. The boom may be extended up to 100 ft. by addition of standard intermediate sections. Main operating machinery of the crane is mounted on cast steel side frames. All shafts are mounted on ball or roller bearings. The outrigger trunk is demountable and permits changing from crane work to shovel, dragline or pull-shovel operations without the necessity of repositioning the lower base of the crane.

GREASE LUBRICATOR FOR CONVEYORS

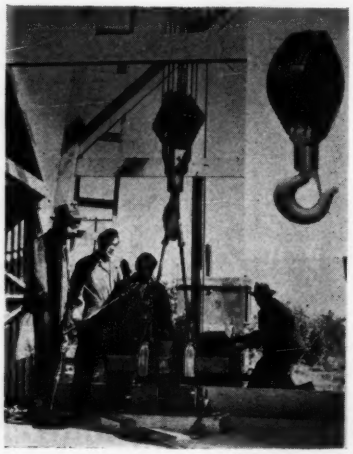
NP3—A new simplified self-contained grease lubricator for trolley conveyors is available from the J. N. Fauver Co. The unit requires no external power for operation and is driven by contact with the trolley. As the trolley wheel approaches the lubricator, the hub engages the sleeve of one of five pumping units, which is thus automatically brought into contact with the wheel bearing. Continued rotation of the



lubricator forces the pumping unit inward, delivering a measured quantity of lubricant through the fitting to the wheel bearing. As one trolley wheel is greased, a cam located in the pump housing snaps the next pumping units into the exact position to contact the next wheel as it comes along. Use the card bound into this issue to get complete details.

THRUST BALL BEARING SWIVELS

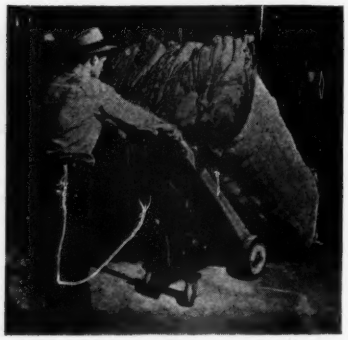
NP4—Twisting and kinking of the wire lines in strung hoisting blocks can now be prevented, it is stated, through the use of Miller Angular Thrust Ball Bearing Swivels, manufactured by General Machine & Welding Works. The ball bearing swivels are used in several ways on strung blocks. Swivels combined with the hook make it pos-



sible to turn loads independently of the block. The freely turning, angular thrust swivels are also widely used on the dead end of strung blocks. When used in this manner, they are said to make stringing or restringing easier by automatically taking the kink and twist out of the line. Complete assemblies are available; the swivels can also be inserted in blocks now in use. They can be obtained in a wide range of capacities handling up to 23-ton working loads with a safety factor of more than five to one.

BALE TRUCK

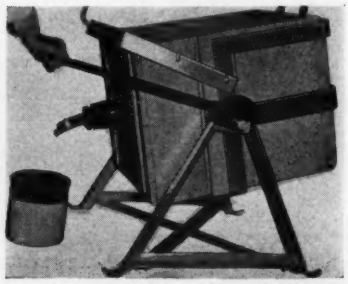
NP5—The Melooz Mfg. Co. announces that its Bale Truck is designed for one-man handling of bales up to 72 ins. and weighing 1800 lb. The unit makes use of a leverage plate, extending 28" from the axle to the rear casters, and terminating in a contoured foot rest. When



the operator stands on the foot rest, he applies a force equal to 3½ times his own weight to the overbalancing and loading of the bale. As he grasps the top wire and tugs it toward him, the bale is loaded and brought down to wheeling position. The weight of the load is carried on the steel tripod and rear casters. A tilt-and-lock mechanism changes the angle of the truck for the proper balance and maximum ease in handling.

CARBOY TILTER

NP6—General Scientific Equipment Co. has developed a carboy tilter with a pouring spout for draining acids and



other liquids from all sizes of carboys.

The cradle and supporting base are made of structural steel. The locking device permits the carboy to be held positively at any angle for pouring so that the whole operation can be done by one man. A safety air vent pouring spout is designed for an even flow of acid without spurts or splashes. The spout is made of acid resisting rubber and plastic tubing. Flow capacity is five gallons per minute. For further information use the postcard bound into this issue.

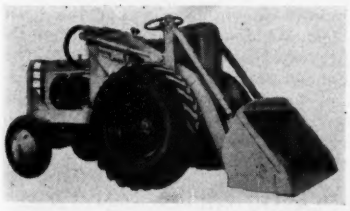
AUTOMATIC REMOTE CONTROL DISTRIBUTION

NP7—The Syncro Timer, manufactured by Pratt & Whitney Division, Niles-Bement-Pond Co., is a remote control, delayed action relay for controlling distribution on a conveying and sorting mechanism. It is a self-contained unit driven directly by the mechanism so that acceleration, deceleration or stopping does not affect

the accuracy of its performance. For example, in a coal mine it can sort slag from among the loads of coal on a conveyor belt; sort the output of an iron foundry, distributing each casting to the proper machining department; gather the many components in an automobile assembly; or sort fresh fruit etc. on a conveyor line. The circuits can be controlled automatically from a gaging circuit or an operation cycle, or they can be used manually by a push button. For further information, use the postcard bound into this issue.

TRACTOR SHOVEL

NP8—A new material handling loader is being manufactured by Tractomotive Corp. The TL-W Tracto-Loader has a



one-half cu. yd. standard bucket. It is mounted on rubber tires, with the bucket located over the driving wheels and the steering wheels in the rear. The unit's short overall length, 12′ with bucket down, and a width of 5′9″ (outside tire measurements), facilitates operations in close quarters. The bucket, hydraulically operated and positively controlled, can be dumped in part or all at once, and will fully load average dump trucks, according to the release.

CIRCLE NUMBERS ON THE CARD AND MAIL!

FOLD-AWAY TRUCK LOADER

NP9—The Stratton Equipment Co. has announced a hydraulic lifting device which, attached to the side of a highway truck, raises a load (and the

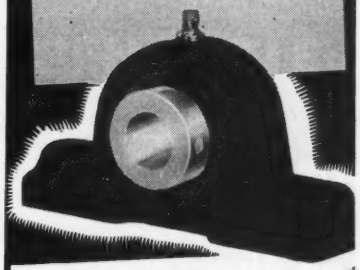
operator) from ground to a height of seven ft. and higher. It is designed for handling bulky material, boxes, crates, cans, bales or drums. The hydraulic mechanism is actuated from the power take-off of the truck transmission.

When not in use, the Hydro-Loader lies flat against the side of the truck, as shown. Two models are available, one with a capacity of 750 lb., the other 1500 lb. The platform of the loader can be stopped at the level of the respective tiers in the truck, so that no manual lifting is necessary when stacking units.

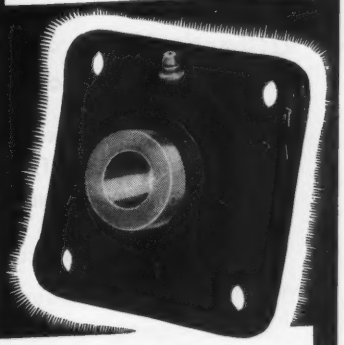
BARREL AND DRUM TRUCK

NP10—The Thomas Truck & Caster Co. has announced a new Safety One-Man Barrel and Drum Truck. It weighs 63 lb. and has a capacity of 1000 lb. Wheels are 10″ in diameter by 2½″ face width with heavy-duty molded-on rubber tires. Wheel hubs have roller bearings and grease gun fittings. The truck can stand in an erect position when not in use and is equipped with rubber covered hand grips. The truck frame is the single center column

Lower Your Manufacturing Costs With Roberts BALL BEARING PILLOW BLOCKS AND FLANGE UNITS



Roberts Pillow Blocks and Flange Units are designed to carry light loads at speeds up to 1,000 R. P. M. Heavy duty cast iron housings with grease fitting are provided. Felt seals give ample protection for the bearings.



Roberts Pillow Blocks and Flange Units may provide anti-friction bearings suitable for your application at lower cost. Ideal for conveyors and farm machinery. Write today for catalog, engineering advice, and prices.

Agents, distributors and dealers wanted.

Roberts MACHINE WORKS
A DIVISION OF MINNESOTA BEARING CO.
1619 Hennepin Avenue
Minneapolis 3, Minnesota

handle bar type with frame of 1¼" tubular steel and center column of square steel tubing.

CARD RECORD DEVICE

NP11—The Wassell Organization has announced the Rota-File, record-containing system, which is adapted for card ledger files of any normal size. It is flexible to meet the needs of the smaller organization with 5000 items to record or those of the largest with posting requirments of 200,000. It is a rotatting file on a horizontal plane, built to house the normal numerical and/or alphabetical arrangements. Provisions are made for seating one or more operators around the rotary file. Its five-ft. diameter reduces total required area to less than 25 sq. ft.

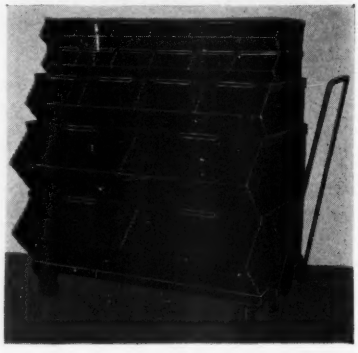
ATTACHMENT FOR WOODEN CRATES

NP12—A new fork truck attachment for handling and carloading of wooden crates has been announced by the Automatic Transportation Co. The crate handling attachment, for use on Skylift electric trucks, uses a clamp device, instead of forks, which grips the end slats of the boxes. The load is then lifted, carried and tiered as in a standard handling operation. The attachment picks up crates in either the vertical or horizontal position. An optional sideshifting device can move four ins. in either direction from center. The clamping arms which grip the end slats of the crates are actuated by a high

pressure hydraulic system. Control is by push buttons from the operator's position. Send the card bound into this issue to get complete information.

STOCKROOM ON WHEELS

NP13—The Stackbin Corp. has developed Stackbin Sections mounted on a four-wheel truck base for moving parts from the stockroom to assembly or shipping departments. The sections, constructed of inter-locking steel units



of two to six bins, in five different sizes, stack compactly on the truck and nest rigidly together. Hopper-front bins are said to make the contents easy to see and reach. The units are made of heavy welded metal with folded edges. Swiveling casters and a long double column handle facilitate movement.

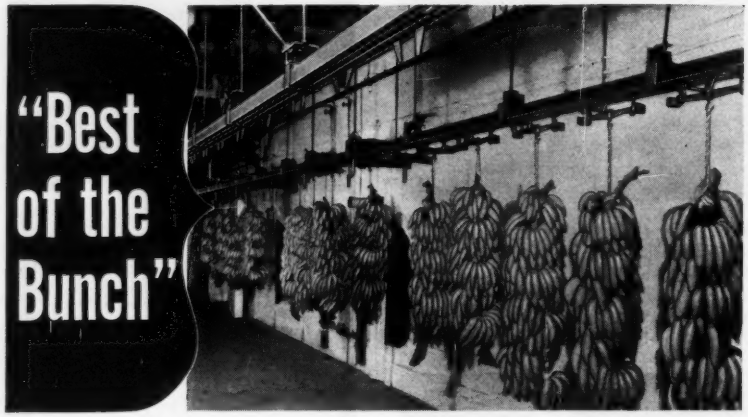
CIRCLE NUMBERS ON THE CARD AND MAIL!

SHEET AND BUNDLE GRAB

NP14—A positive, fulcrum action sheet and bundle grab is available from the Rada Products Co. It is adjustable from 12 to 42 ins. and carries a stack up to 10" of sheet metal or bundled material within five ins. of the hoist hook. Wide angle jaws permit clearance of cross members on skids. The compact grab has welded steel construction, fits standard hoists and can be operated by one man using the removable steering bars and remote control switch.

PLASTIC ROLLER CONVEYOR

NP15—Alvey Conveyor Mfg. Co. is marketing a new light-weight portable conveyor which combines a plastic roll-



Richards-Wilcox Power-Driven Conveyors Boost Production and Profits

In today's highly competitive market, it is significant that the plant with Richards-Wilcox Conveying Equipment operates more efficiently, more profitably.

A Richards-Wilcox Conveyor for Every Job

R-W continuous power conveyors are serving production and processing lines in every imaginable industry . . . increasing efficiency, cutting costs. Let us prove to you how R-W Power-Driven Conveying Equipment can quickly step up efficiency and profits in your plant. Telephone, write, or wire the nearest office of Richards-Wilcox, world's largest makers of power conveyors and door hardware.

1880 RICHARDS WILCOX R-W AURORA 1949

Reg. U. S. Pat. Off.
OVER 69 YEARS

Richards-Wilcox Mfg. Co.
AURORA, ILLINOIS, U.S.A.

er with magnesium or aluminum frames. The unit has a 10" carrying surface with 2" diameter rollers set on 4" centers. It is designed for handling boxes and cartons constructed of lighter cardboard and such reusable cartons as brewery cases. Ball bearing rollers require minimum grade; rollers and aluminum frame are corrosion resistant. Couplings are hook-on type. Weighing 32 lb., the distributed load capacity is 500 lb. per 10-ft. section.

MOBILE CRANE FOR FIVE-TON LOADS UNIT

NP16—Designed for handling five-ton load units of steel is this mobile crane manufactured by the Silent Hoist & Crane Co. This method of handling has been applied to rounds, flats and rolls in loading and unloading box cars, gondola and flat cars. The boom provides

maximum area between the front of the crane and the underside of the boom so that the unit may be driven up to the side of the carrier to reach material at the far side. The boom is provided with a hydraulically powered topping mechanism for elevating. The operator can also rack the boom to bring the load closer to the front of the crane while traveling and to negotiate congested areas, doorways, etc.

BRIDGE RAMP

NP17—The Roll-Rite Corp has developed a heavy-duty bridge ramp. Features include positive locking device; bevelled edges for easy entry; flared side rails for tire and equipment protection; counterbalanced lifting stirrup; specially designed car doorstops, and heavy longitudinal and transverse trusses.

THREE FORK MODELS

NP18—Hydraulically operated load handling forks for lifting bricks, barrels, boxes and bags are now available

for all models of fork trucks manufactured by The Buda Co. One of the features of these forks is the positive gripping of load until the load weight is relieved. Models come in three styles: two forks for holding the sides of a barrel or a load unit of package goods; four rubber-padded forks for gripping the bottom tiers of bricks; and four semi-curved forks for lifting two rows of bags.

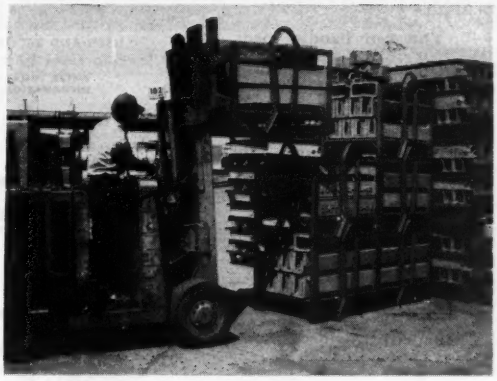
TELESCOPIC HIGH-LIFT TRUCK

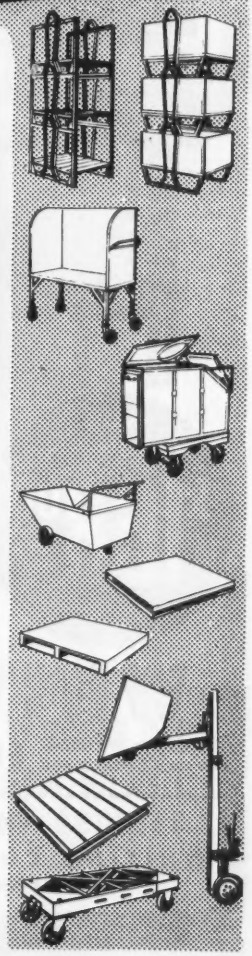
NP19—The Revolvator Co. has added a new telescopic straddle type high-lift truck to its line of walkie-type platform and pallet trucks. The vehicle is designed for travel in narrow aisles, and is said to be able to tier to a height of 115" in six-ft aisles with a load length of 48 ins. The capacity of the unit is 2500 lb. Collapsed heights are 68 and 83 ins.

LIVE ROLLER CONVEYOR

NP20—A new design of live roller conveyor has been developed by the Standard Conveyor Co. The roller actuating transmission consists of a roller chain mounted at one side of the frame, which engages sprockets attached to hexagon thru shafts and provides positive driving of the axles. With or without a load, the rollers may be stopped by a slight pressure of the hand; if the line becomes filled with commodities, the bearings turn and the rollers remain stationary.

STREATOR DEPENDABLE
Materials Handling Equipment
Designed for the Job!





▲ Shown in action at
CATERPILLAR TRACTOR CO.

Shown above are specially designed STREATOR DEPENDABLE racks used by Caterpillar Tractor Company in their giant new Diesel Engine Factory. These racks have the following advantages: Ends are open to allow for easier storage and handling of odd-shaped castings, crankshafts, etc. Hairpin design assures positive, secure tiering up to 4-high. Can be stacked and transported by power lift truck, overhead crane, or moved along conveyor track. Open base to allow fork truck to pick up rack from any side. Heavy duty welded steel construction.

Full line of STREATOR DEPENDABLE materials handling equipment—made-to-order to fit the job.

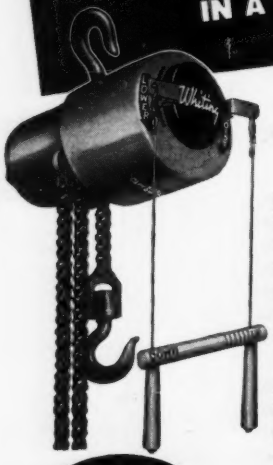
DEPENDABLE DUMPER—self dumping hopper—easy for one man to fill, transport and unload, quickly. 1/3, ½ and 1 cubic yard capacities. (Specials on request)

Also STREATOR DEPENDABLE SEATS for all industrial equipment.

STREATOR SINCE 1913 Dependable MANUFACTURING CO. STREATOR · ILLINOIS

Here's a Hoist that...

PAYS FOR ITSELF IN A FEW MONTHS!



Even When Used Only a Few Minutes a Day

You can handle loads up to two tons 13 times as fast with a Whiting electric hoist as you can with a hand hoist . . . cutting down expensive, idle time of workers and machines.

Whiting hoists can be installed by one man, yet are so rugged they will stand up under heavy duty. The unique worm-gear drive provides smooth, silent power, and makes possible a hoist of amazing simplicity. Whiting hoists last longer because they have fewer wearing parts than any other electric chain hoist. Investigate their money-saving possibilities.

NOW NEW LOW PRICES $168.00 F.O.B. HARVEY, ILLINOIS and Up

WHITING

Builders of Cranes, Monorail Systems and **ELECTRIC HOISTS**

Write for Bulletin H-100B

WHITING CORPORATION
15659 Lathrop Ave., Harvey, Illinois

☐ Send me a copy of your Bulletin H-100B.
☐ Send me the name of the Whiting distributor in my locality.

NAME_____

STREET ADDRESS_____

CITY_____ STATE_____

NO DUST! with Wilshire POWER SWEEPER

MODEL 500

CLEAN YOUR PLANT QUICKLY EFFICIENTLY AND SAFELY

with the Wilshire Model 500... its exclusive filtering system deposits dust in specially designed bellows bag that requires infrequent emptying.

With or without sulky, Model 500 does a thorough cleaning job both indoors and out, reduces cleaning time and maintenance costs 90%. All safety devices for indoor operation—sweeps right up to machinery and walls without scraping or marring—keeps floors free of nails...chips...shavings...and other debris.

Factory-Tested 90-Day Guarantee

Also available:
Model 150, same as Model 500 except for vacuum attachment.

USED AND RECOMMENDED BY Leading Firms from Coast to Coast

WRITE TODAY FOR FULL INFORMATION, DEPT T5N-5

FEATURES

- 3 h.p. 4-cycle gas motor, air-cooled
- One-piece aluminum frame
- 27", 36", 48" sweeper widths
- Finger-tip dual control
- Specially designed brush assembly
- Full floating ball bearing equipped shaft

Wilshire POWER SWEEPER CO.
4615 ALGER STREET
LOS ANGELES 26 CALIF.

SWEEPING THE COUNTRY SINCE 1940

THE WORLD'S GREATEST NAME IN FLOOR SURFACING

..with PLASTIC ROCK

Plastic Rock comes complete, packed in barrels; nothing more to buy; no "formula" to confuse. Simply mix and trowel over old floor; adheres to concrete, wood, steel; average depth ½"; perfect feather edge; hundreds of tons rolling on steel wheels only improve it. Spark-proof, skid-safe wet or dry; dustless, noiseless; cannot splinter, crumble, curl or loosen. Used by largest industries and railroads.

ASK FOR REPORT 220-F-7

UNITED LABORATORIES, INC., 16801 Euclid Ave., Cleveland 12, O.

TESTED-APPROVED UL UNITED LABORATORIES, INC.

PRODUCTS AND PROCESSES For PROTECTING PROPERTY

Field Representatives All Over The World

MEN IN THE NEWS

JOHN H. LESLIE, vice president in charge of research and engineering for the Signode Steel Strapping Co. has been elected president of the company. He succeeds his father, John W. Leslie, who was elected chairman of the board. John S. Gorman, vice president and director of sales, has been elected vice chairman of the board. J. M. Moon was promoted from sales manager to director of sales.

J. H. Leslie

GEORGE L. STAUDT has been appointed advertising and sales promotion manager of Harnischfeger Corp., according to an announcement by F. Salditt, vice president in charge of sales. Staudt was formerly director of advertising for Standard Register Co. He was assistant advertising manager of the Illinois Central Railroad and was employed by the Benson and Dall Advertising Agency.

G. L. Staudt

PETER P. RUPPE has been named general manager of Hapman Conveyors, Inc., according to an announcement by H. W. Hapman. Ruppe has been chief engineer of the company and was formerly connected with the U. S. Rubber Co. and Briggs Mfg. Co.

MAXWELL C. MAXWELL, special assistant to the president of The Yale & Towne Mfg. Co., and former works manager of the Stamford Division, has retired after 35 years of service. This was announced by President Calvert Carey. Maxwell joined the company in 1914 when he was appointed plant engineer. Since then, he served Yale & Towne in many capacities, first in the Stamford Division and later in the company's executive offices in New York.

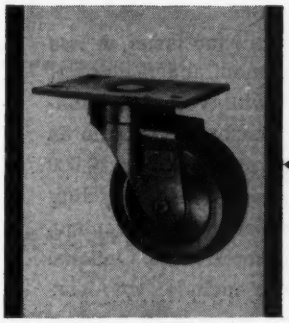
THE Gould Storage Battery Corp. has opened a new regional office for industrial storage battery sales and service engineering at 444 Market St., San Francisco. The office will be under the direction of C. H. Hart. Hart is a veteran of the Gould field organization on the coast and specialist in battery applications in the material handling and mining fields.

E. L. KLINGLER will direct the sale of Wickwire rope in the mid-continent area (Houston, Abilene, Texas and Tulsa, Oklahoma). The product is manufactured by Wickwire Spencer Steel Division of The Colorado Fuel and Iron Corp. Klingler will be permanently located at Houston. He previously operated out of the Palmer sales office in Massachusetts.

FRANK H. STOHR has been named general manager of the Allis-Chalmers Mfg. Co.'s Norwood Works, according to an announcement by W. C. Johnson, executive vice president in charge of the firm's general machinery division. Stohr, before taking over his new duties, was executive vice president and a director of the Elliott Co. He succeeds R. W. Davis, general manager of the plant since 1944.

GEORGE R. BROCKWAY has been appointed sales manager of The Rapids-Standard Co., Inc., material handling equipment manufacturers of Grand Rapids, Mich. He was formerly assistant sales manager and central regional sales manager. Lloyd C. Backart, formerly president and sales manager since incorporation of the firm, will continue actively in the company as chairman of the board.

DARNELL CASTERS



They are kind to your floors.

For light, medium or heavy duty service Darnell Casters and Wheels are dependable — saving floors, equipment, money, time and temper.

DARNELL CORP. LTD.
Long Beach 4, Calif.

60 Walker St., New York 13, N. Y.
36 N. Clinton, Chicago 6, Ill.

X MARKS THE JOBS where you can save with "Shop Mules"!

(X) Pushing cars, machinery, etc.

(X) Hauling coal, waste, etc.

(X) Pulling equipment with winch

(X) Plowing snow, sweeping, mowing

Also check Buda Fork Lift Trucks

YOU can move more tonnage faster, at less cost . . . save time, equipment and manpower on scores of jobs . . . with versatile Buda-Hebard *"Shop Mule"* tractors. Available in complete range of sizes from 1000 to 12,000 lbs. drawbar pull. Engineered for heavy-duty pushing or pulling on floors and pavement, or over rough yard and track areas. Optional models and attachments include: rear platform, dump body, winch, portable arc welding equipment, snow plow, broom, mower bar, etc. Underwriters' approved! Nation-wide parts and service facilities. Mail coupon for complete information TODAY.

BH-8

Clip... Mail Today

THE BUDA COMPANY
Materials Handling Div., Harvey, Ill.

☐ Rush details on Buda-Hebard "Shop Mule" Tractors for _____ (application)

Name _____ Title _____

Company _____

Address _____ City _____ State _____

Also send data on Buda
☐ Fork Trucks ☐ Platform Trucks

BUDA

...the line with "all 3" for diversified handling

Fork Lift Trucks · Platform Trucks · Industrial Tractors

CONSULTING ENGINEERS DIRECTORY

Delos M. Palmer & Associates
Consulting Engineers
Electrical, Mechanical, Industrial
Processing, Plant Layout
Machine Design, Product
Development, Special Problems
Toledo 12, Ohio
4401 Jackman Rd. KI-9611

INSTITUTE NEWS . . .

(Continued from page 39)

John W. Stiles, vice president and general manager as the official company representative; Harry J. Ferguson Co., with Harry J. Ferguson, president, as representative.

THE May meeting of the Northeastern Ohio Chapter, Cleveland, was held in Lorain, Ohio, where members and guests spent the afternoon visiting several plants of the Thew Shovel Co. The dinner meeting was addressed by officials of Thew, and the company's new color film "Materials on the Move" was shown for the first time. The final meeting of the year was held at the Timken Roller Bearing Co., Canton, June 16.

AT THE last meeting of the season held on May 10, the New England Chapter of the Material Handling Institute voted to change its name to the New England Chapter of the American Material Handling Society. Professor William Van Allen of M.I.T., a member of the Chapter, was elected as the delegate to the convention of the American Material Handling Society which was held in Toledo in June. The 100 people who attended the May meeting heard Frank D. Lindquist, general superintendent of Crompton & Knowles, whose subject was "25 Years of Material Handling." Two films were shown, "Up and Over", by the American Monorail Co., and "Here Is Your Work Saver", by the Yale & Towne Mfg. Co.

THE

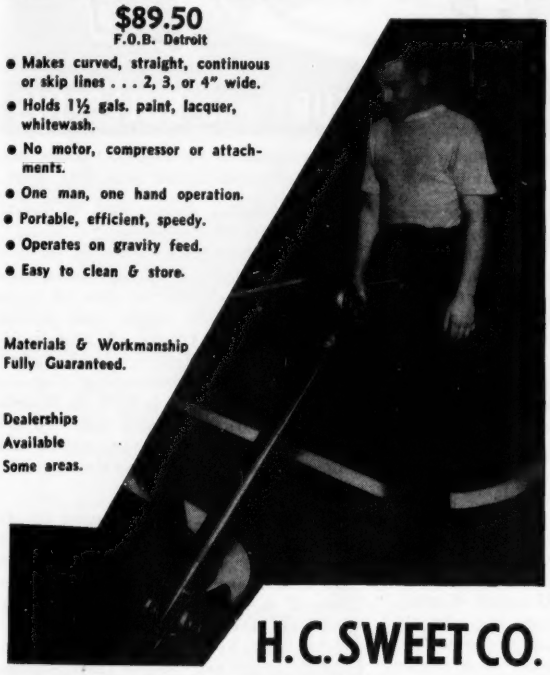
FLORLINE

MARKING MACHINE

MAKES SAFETY AND PARKING LINES AT WALKING SPEED!

$89.50
F.O.B. Detroit

- Makes curved, straight, continuous or skip lines . . . 2, 3, or 4" wide.
- Holds 1½ gals. paint, lacquer, whitewash.
- No motor, compressor or attachments.
- One man, one hand operation.
- Portable, efficient, speedy.
- Operates on gravity feed.
- Easy to clean & store.



Materials & Workmanship Fully Guaranteed.

Dealerships Available Some areas.

H.C. SWEET CO.

12083 Woodbine Ave. Detroit 28, Michigan Dept. F

New

UNIT 1520

Self-Propelled

RUBBER-TIRED CRANE

15 TON CAPACITY

This 50,000 pound Mobile Crane is a completely new member of the UNIT Crane and Shovel line. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard.

- Rugged . . . Perfectly Balanced
- Hook Roller Construction
- Controlled and Operated by ONE Man
- Powered by ONE Engine
- Hydraulic Steering
- Air Brakes and 4 Speed Air-Actuated Transmission
- Heavy Duty, yet operated with remarkable SPEED . . . SAFETY . . . ACCURACY . . . ECONOMY!

UNIT CRANE & SHOVEL CORP.

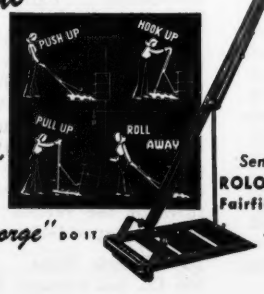
6531 W. BURNHAM STREET • MILWAUKEE 14, WIS., U. S. A.

So Firm . . .
. . . so fully Loaded
. . . so easy on the draw!

That's *"George"* the extra special Tote Box Truck

No need to use the dangerous "hernia method" for handling tote boxes . . . "George's" hook and handle leverage principle glides boxes onto truck, safely, easily. You can use a battery of them.

Ask the man who hauls one!

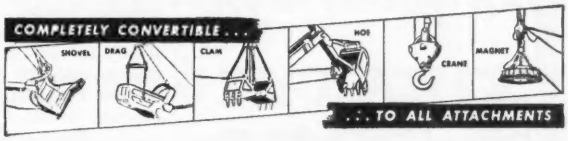


With apologies to you know who

LET *"George"* DO IT

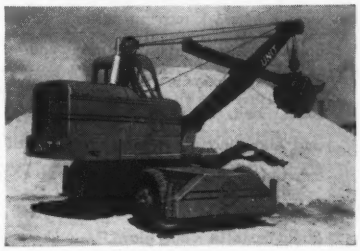
Send for Folder F
ROLOCK Incorporated
Fairfield, Connecticut

COMPLETELY CONVERTIBLE . . .



. . . TO ALL ATTACHMENTS

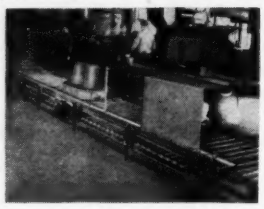
UNIT 357 MOBILE CRANE WITH ½ Yd. SHOVEL ATTACHMENT



- IT'S SELF-PROPELLED
- IT RIDES ON RUBBER
- IT HAS 1001 USES

SHOVELS • DRAGLINES • CLAMSHELLS
CRANES • TRENCHOES • MAGNETS

How to Cut Handling Costs



Just off the Press!

● These 32 pages contain specific examples of how handling costs can be cut . . . substantially. Show conveyers at work moving cartons, coils, boxes, cases, parts and many other products. Illustrate roller, wheel, live roller, belt, chain, overhead trolley, and elevating conveyers, and special conveying machinery.

If you are interested in cutting handling costs in your plant, you should have this 32-page book.

Your copy mailed promptly upon request

MATHEWS CONVEYERS

GENERAL OFFICES

Mathews Conveyer Company
ELLWOOD CITY, PENNSYLVANIA

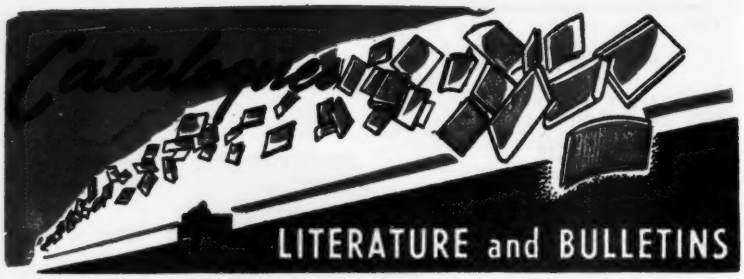
PACIFIC COAST DIVISION

Mathews Conveyer Company West Coast
SAN CARLOS, CALIFORNIA

CANADIAN DIVISION

Mathews Conveyer Company, Ltd.
PORT HOPE, ONTARIO

Engineering Offices or Sales Agencies in Principal American and Canadian Cities



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Telescopic Wheel Conveyor . . . An eight-page pamphlet from the Wilkie Co. containing data on its line of telescopic gravity wheel conveyors. Some models may be extended from 10 to 40 ft. in inch multiples. The flexibility of these units makes them useful in loading and unloading highway carriers as well as storing and in-plant moves. The literature contains pictures, engineering drawings, specifications and operating information.

26—Tractor Shovel . . . "Four Wheel Drive is Here" is the title of a new booklet issued by The Frank G. Hough Co. It features the new Hough Model HM Payloader Tractor Shovel, which is equipped with four pneumatic tires. Action photos show the unit digging, loading, grading and carrying, also operating in sand, mud and on rough terrain. The 76 HP model is available with 1½ cu. yd. capacity bucket. Specifications, line drawings, general data, and detailed information of components are given.

27—"Ready-Power for Electric Industrial Trucks" . . . A six-page, two-color brochure is available from the Ready-Power Co. It contains numerous photos showing the company's power unit installed in many types of industrial trucks. Included are truck cranes, fork trucks, low-lift platforms, tractors, high-lift platforms, transfer cars, and other equipment.

28—Heavy-Duty Fork Trucks . . . The Ross Carrier Co. offers printed specification sheets illustrating and describing its new series of hydraulic fork trucks in capacities from 15,000 to 18,000 lb. Each sheet lists the operating features for that particular model, plus information regarding tractive effort, grade ability, safe working capacity, specifications and details of component parts. Five models are covered.

29—Industrial Solid Tires . . . A 26-page catalog, by the Monarch Rubber Co. The tires described are applicable to fork trucks, platform and crane trucks, tractors and two and four-wheel hand trucks. Specifications and general information are given on pressed-on and cured-on solid tires. A valuable feature is tips for longer tire wear, including such subjects as proper clearances, overloads and obstacles, regular inspection schedules, misalignment, oil, grease and acids and excessive heat. Eleven pages contain tire specifications of many manufacturers of rolling equipment.

30—For Bulky Crates and Materials . . . Skarnes Engineering and Supply, Inc. has issued a pamphlet on its line of Rol-A-Lift units. Used in pairs, they are inserted beneath the ends of large bulky crates and boxes and moved about like hand trucks. A unit is inserted at each end of the load, jacked up, and rolled to destination. Capacities range from 2000 to 8000 lb. Models are built with adjustable forks to accommodate units of varying widths and operate with a mechanical cam lift. Photos and specifications.

31—Batteries . . . Information on its line of lead acid batteries for electric industrial trucks and motorized hand lift trucks is contained in a booklet from C & D Batteries, Inc. Cut-away drawings show construction details together with explanatory text. Specifications cover five models. Information is given on battery capacity at different periods of use, cell dimensions, and charging rate in amperes at the start and finish.

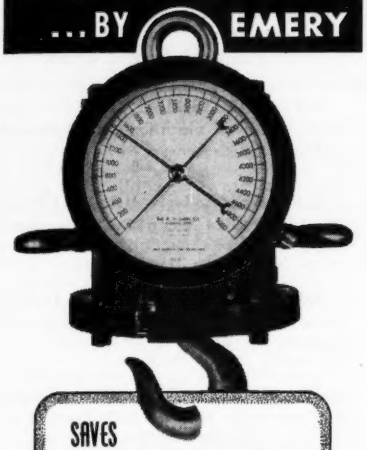
32—Scales . . . The Toledo Scale Co. has issued a broadside containing data and photos of several dozen of its models. Shown are bench, portable, fan, mailing, counting and floor types, also overhead lever units, built-in and motor truck scales. On-the-spot photos show how these units may be integrated with production, packaging and shipping lines, and in-the-yard installations. Operating data and specifications are listed for each model.

33—Steel Strapping . . . The latest issue of Process News, published by the Acme Steel Co., contains case histories of the application of steel strapping to various industries. Included are strapping used for hay, cabinets, log loading, carload bracing, returnable pallets and containers, bed frames, bundled flooring, etc. Many photos and drawings.

34—Scales . . . Fairbanks, Morse & Co. is offering a series of bulletins dealing with its line of scales. Information is included on motor truck, printomatic and belt conveyor scales, also axial air gap motors. Other bulletins contain pictures of printomatic scale installations in dairies, on bridges, in packing plants, enamel plants, steel mills, grain elevators and laundries. Operating features of the various models, illustrations and specifications are included.

35—Electric Hoist . . . The Harrington Co. has released Bulletin P-53, on

CRANE SCALE
...BY EMERY



SAVES
TIME IN MATERIAL HANDLING

Weighs load while on crane; eliminates extra handling. Compact; rugged. Features famous Emery Hydraulic Cell. Load capacities up to 30,000 lb. Precisely calibrated at factory; guaranteed accuracy. Prices from $882 to $1385. Complete literature on request

THE A. H. EMERY CO.
STAMFORD, CONN

its Bearcat Electric Hoist. Among the features listed are interchangeability of spur gears to obtain various hook speeds and load capacities; two brakes; anti-friction bearings; close head room; operating handle marked and shaped for recognition of up and down operation. The main housing and covers of the hoist are aluminum alloy castings. Hook speed ranges from 12 to 50 ft. per minute, with lifting capacities from 140 to 2000 lb. Components and complete models are illustrated. Specifications, engineering data and drawings.

36—Protective Packaging . . . The Kimberly Clark Corp. is offering a four-color, 10-page brochure illustrating and describing Kimpak, a protective packaging material. Photos show Kimpak used with various types of products, ranging from vanity cases and nylon stockings to ranges, deep-freeze units and heavy machinery. The publication also contains pictures and data on the application of Kimpak to blocking and bracing, flotation, absorbent packing and surface protection.

37—Motorized Hand Trucks . . . Bulletin No. 49, by the Moto-Truc Co., on its line of motorized hand trucks. Platform, pallet, telescopic high-lift, and tractor trucks are pictured and described. All models contain roller type control handles, push buttons for operating the electric-hydraulic pump, and interchangeable motors. Photos of components, engineering drawings and application pictures illustrate the general operating information.

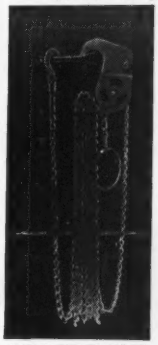
38—Automatic Take-up Reels . . . Automatic spring-driven take-up reels for electric wire and cable, air hoses and portable tools are the subject of a four-page pamphlet available from the Appleton Electric Co. Type "YS" is an automatic take-up, spring-operated cable reel, designed primarily to furnish power to traveling electric hoists operating on straight or curved tracks. Over a dozen models are pictured and described.

39—Battery Charger . . . Bulletin 224, issued by The Electric Products Co., contains a case study of battery charging equipment at a large paper company. Pictures show charging room layouts and closeups of equipment. The bulletin also lists information on correct charging and maintenance schedules, handling equipment designed for loading and unloading batteries and detailed operating data for battery chargers.

40—Crawler and Tire Mounted Cranes . . . is the subject of a series of catalog sheets offered by Unit Crane and Shovel Corp. Pictured are complete models, components, and typical operations. Load charts show ranges and clearances for various models equipped with different attachments. Safe-load charts stating safe lifting capacities for different boom elevation angles are given for all units, among other data.

OPENS
BOX CAR DOORS!

NOLAN ONE MAN
CAR DOOR OPENER



One man can open the most binding, balky box car door with the Nolan Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

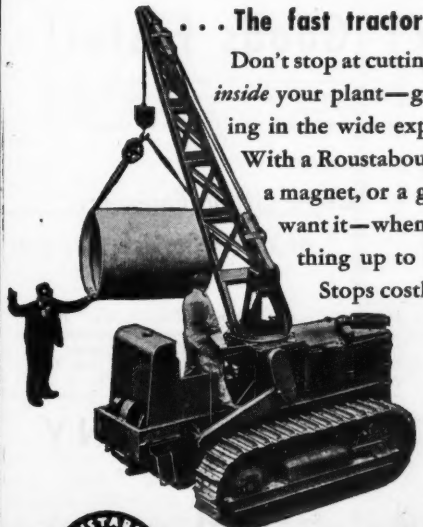
● No strained muscles. No slips or falls. No broken arms, legs or smashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

Write for free descriptive literature.

ONLY $27.50 EACH
F. O. B. Bowerston

The Nolan Company
110 Pennsylvania Ave., Bowerston, Ohio

Reduce Costs Outdoors as Well as In with
ROUSTABOUT CRANES
. . . The fast tractor-footed load hustlers



Don't stop at cutting materials handling costs *inside* your plant—go outside and start slashing in the wide expanses that eat up profits. With a Roustabout crane you've got a hook, a magnet, or a grab-bucket anywhere you want it—when you want it. Handles anything up to 7½ tons, uphill or down. Stops costly, manpower-wasting delays. Modernly engineered for years of overwork . . . mounted on crawler or wheel tractors. Write for the whole efficiency story now—to Dept. C-4.

ROUSTABOUT CRANE

HUGHES-KEENAN CORPORATION
DELAWARE, OHIO, U. S. A.
Load-Handling Specialists since 1904

Literature Available From Advertisers In This Issue

(Check corresponding numbers on the enclosed card for the free literature listed below)

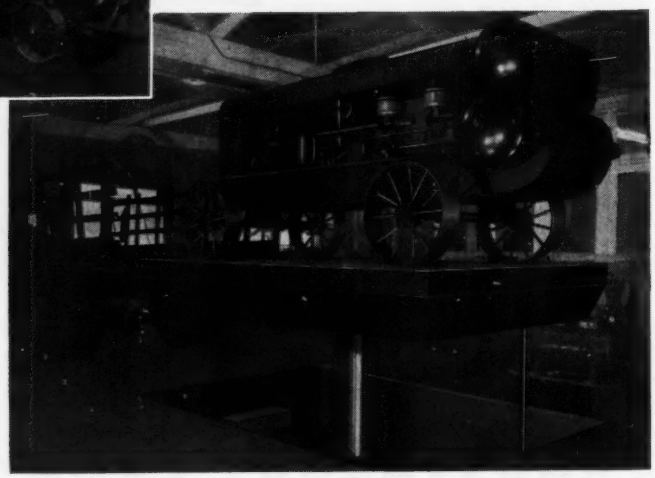
A-1. HARNISCHFEGER CORP. will send you Bulletin H20-4. It gives cost-saving ideas in connection with hoists.

A-2. FAULTLESS CASTER CORP. is offering Catalog 156 concerning its line of casters.

A-3. GOULD STORAGE BATTERY CORP. Literature tells about company's new type batteries.

A-4. ELWELL-PARKER ELECTRIC CO. Available is a 44-page booklet, "Industrial Logistics."

Globe OiLift Platform



Loading heavy 4-wheel air compressors

Loads HEAVY Goods Faster!

Light goods or heavy goods—you can move them in and out of your plant faster, safer, cheaper with a Globe OilLift Platform, or Globe Dock Lift. Lift loads to truck level or lower them to floor level at the press of a switch—at a fraction of former cost.

GLOBE ENGINEERED EQUIPMENT

Globe Lifting Engineers at YOUR Service

Investigate how Globe Lifts can save you time and money. Our materials handling Engineers will gladly prepare suggestions, based on their experience in reducing costs for thousands of plants and processors. Write us your problem—and ask for Bulletin F749 showing typical applications.

GLOBE HOIST COMPANY

Des Moines 6, Iowa — Philadelphia 18, Pa.

Loading Lifts · Elevating Ramps · Industrial Truck Lifts · Production Lifts · Elevators · Sidewalk Lifts

A-5. AMERICAN MONORAIL CO. will send Bulletin C-1, a 56-page publication on monorail installations.

A-6. ROTARY LIFT CO. Data relate operating information on its adjustable ramp for loading docks.

A-7. CURTIS MFG. CO. Literature is available on air hoists, air cylinders and air compressors.

A-8. DEMPSTER BROS., INC. is offering Folder No. 8154 on its shovel truck.

A-9. U.S. RUBBER CO. Data is given on tote boxes of synthetic composition—a recent development.

A-10. HYSTER CO. will send information on its line of fork trucks.

A-11. GENERAL BOX CO. "The General Box" describes a variety of shipping containers for numerous uses.

A-12. BUDA CO. is offering details on the Buda-Hebard "Shop Mule" tractors.

A-13. BOND FOUNDRY & MACHINE CO. will send Catalog K-38 on its line of casters. Circle number on card in this issue to get your copy.

A-14. ACME STEEL CO. "Savings in Shipping" is the title of the company's new case history booklet.

A-15. STANDARD CONVEYOR CO. is offering Bulletin FL-79 on industrial applications of conveyors.

A-16. CLYDE IRON WORKS, INC. Circular MP-40 gives operating data and specifications on the Clyde Handi-Crane, tractor-mounted crane.

A-17. THE STANLEY WORKS. Details are available on strapping tools, reels and accessories. Use the card in this issue to get complete information.

A-18. SAMUEL OLSON MFG. CO. will send particulars on its line of elevators, chutes and conveyors.

A-19. AMERICAN CHAIN & CABLE CO. is offering data on its line of electric hoists. Fill out and mail the card in this issue.

A-20. ROBERTS MACHINE WORKS. Catalogs contain operating data on its pillow blocks and flange units.

A-21. HAMILTON TOOL CO. will send you Bulletin P-47 on its portable elevating table.

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" $4.00 minimum, limit 25 words. For all other classifications $4.50 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address count as five words. All insertions are payable in advance.
These classified columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These columns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

FOR SALE

Automatic Fork Truck—Heavy-Duty Model THF-1-6—6,000# Capacity for 60" long loads NON-TELESCOPIC type—Lift 59", overall 82" including 18-cells TLM-19 Plate "EXIDE" Battery. Steel trays with covers and 48" long channel Slip-On Fork Extensions. Entire Truck and Battery clean. Excellent condition to carry new 90 days warranty. Priced for quick sale at approximately ⅓ new cost. Box 7149 FLOW Magazine.

Conveyor, reversing floor-to-floor type with motor and controls. Three years old. Takes boxes to 24 inches wide. $300. F.O.B. Boston. Write for specifications to: Mr. E. Janse, Pur. Agent, Tracerlab, Inc., 55 Oliver Street, Boston 10, Massachusetts.

FOR SALE—Surplus Yale Work Saver Pallet and Skid Mover — Model M4-DP27-30 Equipped with a 10C7 Edison Battery—Machine in perfect condition. Bought new June '48—Any additional information given on request. Collins-Dietz-Morris Company, Oklahoma City, Oklahoma.

Used Yale Electric platform truck, Model K25, 6000 pounds capacity. Also one used Automatic Transporter, platform type, capacity 4000 pounds, platform 26" wide x 72" long x 9" high without battery, good condition. Also three Ready Power units, model H-36, completely rebuilt. All available for inspection and immediate delivery. E. D. Farrell Co., Inc., 603 South Park Avenue, Buffalo, New York.

CAR SPOTTER SALE: Electric Car Puller Hoists complete with Timken Tapered roller bearings, bronze work gear, sturdy steel base, vertical capstan; totally enclosed ballbearing motor. (3 phase, 60-cycle, 220-or-440 volts—other currents available). Speed approximately 40-ft. per minute. *Model 5-BB (5HP) 5000 lbs. starting pull—$388; *Model 7-BB (7½HP) 7000 lbs. starting pull—$488; *Model 10-B (10HP) 10,000 lbs. starting pull—$587. Bernstein Brothers, Manufacturers-Distributors, "Since 1890" Pueblo, Colorado.

For Sale

Wright-Hibbard Model 300
Electric Fork Truck
45,000 inch pounds
Complete with 16 cell - 15 plate battery
This is not surplus equipment
D. C. Elphinstone, Inc.
115 S. Calvert St. Baltimore 2, Md.
Mulberry 0020

EQUIPMENT WANTED

WANTED

Fork Lift Trucks	Krane Kars
Hand Lift Trucks	Skid Platforms
Pallets	Conveyors

We pay high prices for
Used Handling Equipment

A & A MACHINERY CORP.
1627 Flushing Ave. Brooklyn, N. Y.

POSITION WANTED

POSITION WANTED — SALES ENGINEER: Graduate of North Carolina State College in General Engineering and 22 years of age wishes position as Sales Engineer with reliable manufacturer of Materials Handling Equipment. Salary, expense and bonus arrangement preferred, but others will be considered. Interview preferred and ample references supplied. Post Office Box 1933, High Point, N. C.

WATCH FOR THESE OUTSTANDING REPORTS

Adaptation of gravity conveyors to a Multi Press layout, and a similar study in a compact welding department . . . How a major railroad keeps the wheels moving through its reconditioning shop . . . Latest material handling applications to air freight . . . Engineering elevator requirements for an industrial plant . . . Automatic monorail dispatch systems in a foundry and a glass plant . . . Solution to a variety of handling problems regarding mine supplies in difficult terrain . . . and a new series of Packaging Mechanics articles. You will see these and other valuable reports in early issues of FLOW.

Economize and INCREASE PRODUCTION in your plant with the APPLICATION of *Ultimate* Light and Medium Duty Roller Bed Belt Conveyors.

Let us give you the facts, proven by years of service, on how ISLAND CONVEYORS save manual labor and increase your production. Used by leading dairies, breweries, bottling plants, candy manufacturers and other plants.

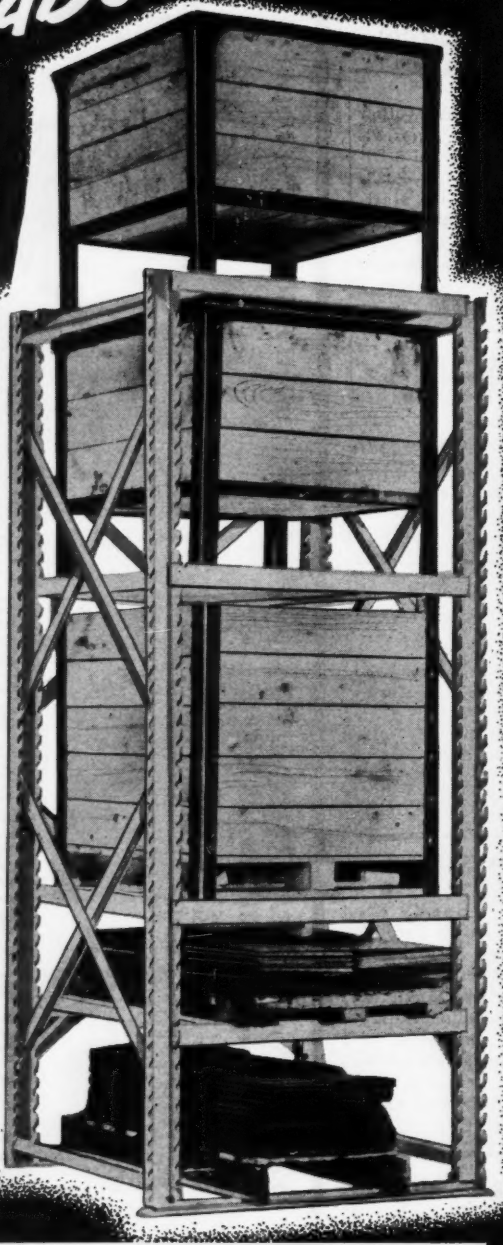
BULLETIN PB-60-1A-1

BULLETIN PA5-1A-2

WRITE TODAY FOR BULLETINS

ISLAND EQUIPMENT CORPORATION 27-01 BRIDGE PLAZA NORTH LONG ISLAND CITY 1, N. Y.

TRULY ADJUSTABLE!



This pallet rack is fully adjustable without the use of bolts or wrenches! Your fork lift truck can quickly and accurately position shelves to the proper spacing.

Racks can quickly be installed in banks of any desired length through the use of additional uprights (standard height 9') bolted to either end of the rack section shown. This is the solution to your pallet storage problem. Write us for details.

RACK ENGINEERING COMPANY
925 LIBERTY AVENUE
PITTSBURGH 22, PENNSYLVANIA

CUSTOM MOLDED RUBBER TIRES

Finest quality cured-on tires of natural, oil resistant, or hard rubber . . . semi-pneumatic and cushion tires . . . pressed-on tires for industrial trucks . . . applied to wheels supplied by you. Wide range of sizes . . . prompt delivery. Write for details.

Cured-on tires from 3x1½ to 28x4

RUBBER PRODUCTS DIVISION
PHOENIX MANUFACTURING COMPANY
JOLIET ILLINOIS

IT'S EASY to remove TRAMP METAL with HOMER PERMANENT non-electric MAGNETIC SEPARATORS

HOMER PERMANENT NON-ELECTRIC MAGNETIC SEPARATORS

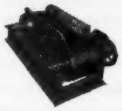
PLATES—Sizes from 4" to 40" Single or triple gap

PULLEYS—Sizes from 12" to 30" dia. Belt widths 4" to 60"

DRUMS—Sizes from 12" to 30" dia. Face widths 4" to 60"

LIQUID TRAPS—Pipe sizes to 10" dia.

PNEUMATIC HUMPS—To fit pipe diameters 3" to 20"



UNITS (Portable)—Sizes from 12" to 30" dia. Belt widths 4" to 60". Lengths to specification

HOMER PERMANENT NON-ELECTRIC MAGNETIC SEPARATORS

Homer The HOMER MANUFACTURING CO., Inc.
DEPT. I-11 LIMA, OHIO

Producers of Magnetic Separator Equipment Since 1923

INDEX OF ADVERTISERS

Acme Steel Co. 41
Albion Industries, Inc. 64
American Chain & Cable Co. 67
American Monorail Co. 6
The Anthony Co. 83
Appleton Electric Co. 30
Arkansas Pallet Corp. 46
Automatic Transportation Co. 1

Baker-Raulang Co. 36
Barrett-Cravens Co. 7
Bond Foundry & Machine Co. 38
Brainard Steel Co. 9
Buda Co. 76

C & D Batteries, Inc. 20
Chattanooga Boiler & Tank Co. 33
Clark Equipment Co. ..... 28 & 29
Clyde Iron Works 50
Coles Cranes, Inc. 57
Colorado Fuel & Iron 69
Colson Equipment & Supply Co. 69
Consulting Engineers 76
Cullen-Friestedt Co. 46
Curtis Manufacturing Co. 13

Darnell Corp. 75
Dempster Bros. 14
Detroit Hoist & Machine Co. 57
Durant Mfg. Co. 50

Thos. A. Edison, Inc. 44
Electrical Industrial Truck Assn. 32
Electro Lift, Inc. 68
Elwell-Parker Electric Co. 5
A. H. Emery Co. 79

Fairbanks Co. 19
Fairbanks, Morse & Co. 4
Faultless Caster Corp. ..... Inside Back Cover

General Box Co. 34
General Electric Co. 18
Globe Hoist Co. 80
Gould Storage Battery Corp. 2

George Haiss Mfg. Co. 46
Hamilton Tool Co. 83
A. L. Hansen Mfg. Co. 68
Harnischfeger Corp. ..... Inside front Cover
Highway Equipment Co. 55
Homer Mfg. Co. 82
Hughes-Keenan Corp. 79
Hyster Co. 17

Island Equipment Co. 81

Lewis-Shepard Products, Inc. 66
Link-Belt Speeder Corp. 10

Magnesium Co. of America 53
Manning, Maxwell & Moore, Inc. 63
Mansaver Industries 69
Mathews Conveyor Co. 78
Mechanical Handling Systems, Inc. 54

Nolan Co. 79

Samuel Olson Mfg. Co., Inc. 53

Pallets, Inc. 83
Palmer-Shile Co. 84
Penco Engineering Co. 64
Phoenix Mfg. Co. 82
Portable Service Equipment Co. 52

Rack Engineering Co. 82
Revolvator Co. 29
Richards-Wilcox Mfg. Co. 72
Roberts Machine Works 71
Rolock, Inc. 77
Ross Carrier Co. 45
Rotary Lift Co. 8
Roura Iron Works 57

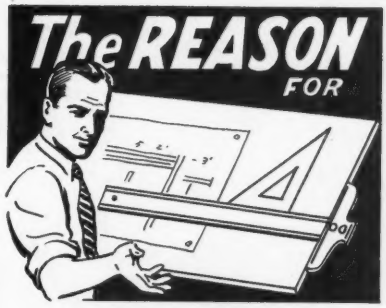
Schwitzer-Cummins Co. 47
Shepard Niles Crane & Hoist Corp. 49
Signode Steel Strapping Co. 12
Speedways Conveyor, Inc. 52
Standard Conveyor Co. 48
The Stanley Works 58
Streator Dependable Mfg. 73
H. C. Sweet Co. 77

Thew Shovel Co. 52
Toledo Scale Co. 51
Towmotor Corp. 25
Truscon Steel Co. 15

Unit Crane & Shovel Corp. 77
United Laboratories, Inc. 74
U. S. Rubber Co. 16

Whiting Corp. 74
Wilshire Power Sweeper Co. 74

Yale & Towne Mfg. Co. 11



ENGINEERED DESIGN

PALLETS

Every warehouseman has one important factor in mind — efficient and economical product storage and handling. ENGINEERED DESIGN pallets meet this demand in every way because each pallet is manufactured to exact specifications. Estimates at no obligation.

Pallets Incorporated

Manufacturers of

ENGINEERED DESIGN *Pallets*

Glens Falls, N. Y.

A WAY TO LOWER UNIT COSTS

INSTALL PORTELVATOR

(The Hamilton Portable Elevating Table)

Portelvator increases production by accomplishing the muscle jobs easily. Eliminates ganging up on heavy lifts. Reduces strains and bruises to office frequency. Buy this brawny helper for each machine, and then .. "Send one man, and Portelvator".

Write for Bulletin P-47

Raises — lowers — transports.

Levels and supports overhanging work.

Forms a work bench when and where you need it.

May be worked at from all sides.

One man can safely lift and carry loads usually requiring the combined strength of four.

Three table surfaces.

Four point support.

Minimum Maintenance — Compare!

Fast lift and slow lift mechanism.

Self locking at any height.

Positive floor lock.

Standard model capacities 1,000 to 5,000 pounds.

Special models designed and built on order.

THE Hamilton TOOL COMPANY

904 HANOVER STREET · HAMILTON · OHIO · U · S · A

THIS *Simple* TRUCK LOADER

CUTS DELIVERY COSTS 50%

ANTHONY LIFT GATE HYDRAULIC

More "LIFT GATES" in use than all others. Simplicity of design is one reason . . . Ruggedness is another. Extra features*—proved by 6 years of field experience—are more reasons why nearly all truck loaders you see are Anthony "LIFT GATES." Write for literature, prices.

*"LIFT GATE" rests on ground. No protrusions to prevent easy loading.

*Loads from all sides at all levels with "Quick Detachable" Ramp.

*Non-sloping—Gives "*Level-lift*" to avoid loads rolling or toppling off.

*Close "Gate" easily with one hand. No power needed.

*Safety Latch locks up. "LIFT GATE" cannot be lowered accidentally.

*Lower "*Point of Leverage*" gives more power with ¼ less working parts.

ANTHONY CO., Dept. 908, STREATOR, ILL.

CARBOY TRUCK

Gripping yoke loads automatically

A truck to move your dangerous acids and chemicals with ease and safety. Simply roll truck up against carboy and drop gripping yoke over the top—pull back on the truck handles and loading is completed. All steel welded construction. Curved handles provide secure grip and comfortable handling. Capacity 500 lbs. Equipped with metal or rubber wheels.

Item B-488-M (*Metal Wheels*) **$38.00**

Item B-488-R (*Rubber-tired wheels*) **$42.00**

Combination TRUCK and DRAIN RACK

Loads Automatically

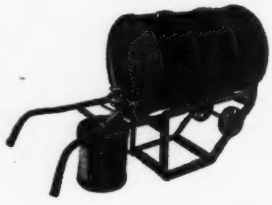
A dual purpose truck that can be used to move barrels or drums and also serve as a drain rack. Available in two styles—with or without detachable handles.

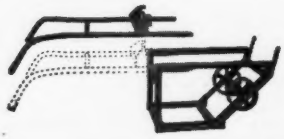
Item NS-506 (*Handles welded to frame*) **$42.50**

Item NS-506DH (*Truck complete with detachable handles*) **44.50**

Item NS-506R (*Item NS-506DH without handles*) **32.50**

Item NS-506H (*Detachable handles only, for use with Item NS-506R*) **12.00**





Automatic END DUMP

For Use with Lift Truck

For handling and dumping sand, castings, scrap, stampings and other heavy materials. Available in two sizes, price with casters on application.

Item S-878-A
½ yard capacity
$130.00

Item S-878-B
1 cu. yd. capacity
$148.00

UTILITIES RACK ON WHEELS

Two Standard Models

Item NS-415-M (*Roller bearing, 6′ x 2′, all metal wheels*) **$61.60**

Item NS-415-R (*Ball bearing, 8′ x 1½′, rubber-tired wheels*) **$63.80**

VENTILATED BOX

Item B-886

Designed for rapid, uniform cooling of hot metal parts, castings, forgings, etc. Can be used with fork or power lift truck—available with stacking lugs if desired. Provides immediate identification of parts.

Item B-731 **$165.00**

DRUM and BARREL TILT

A barrel tilt for controlled, precision dumping or pouring. Ideal for chemicals, solvents, powders, etc. Turns 360° through worm drive. Equipped with two safety type locking devices and all steel, welded yoke. Hand-operated chain drive.

Heavy Duty DIE TRUCK

Just the thing for heavy dies, jigs, fixtures, stampings or heavy, cumbersome loads being continually moved from one machine to another. Can be built in special sizes to meet specific requirements.

Item B-768

When Ordering Always give "Item" number. We will help prevent error. All prices are f.o.b. Detroit. Prices subject to change without notice.

We design and build all types of trucks, skids, pallets, platforms, racks, boxes, bins, and tables . . . for pick-up, loading, moving, shipping, dumping and storage.

DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

NEW CATALOG

NOELTING

Faultless

engineered

CASTERS for INDUSTRY

DOUBLE BALL BEARING SWIVEL CASTERS
RIGID PLATE CASTERS
FAULTLESS
A COMPLETE SELECTION OF ENGINEERED CASTERS DESIGNED FOR EVERY TYPE OF DUTY
VULCANIZED RUBBER TREAD CASTERS
THREAD GUARDS FOR TEXTILE TRADES
NOELTING FAULTLESS
V-GROOVED WHEELS FOR ANGLE IRON TRACKS

Save costs 3 ways!

1. PRODUCTION: Higher production costs demand new *short cuts* ... from receiving to shipping platforms. Faultless Casters speed up the *flow of materials.*

2. MAN-HOURS: Cutting handling time, *accounting for over 20% of industry's man-hours,* provides your greatest opportunity for gains in worker productivity—unit output.

3. FLOORS: No need for costly floor alterations or floor covering —Faultless wheels are available for all types of floor surfaces and loads.

For further particulars, write for Catalog 156 or let our nearest sales-engineer submit suggestions for handling ***your*** caster problem, no obligation.

FAULTLESS CASTER CORPORATION
DEPT. F-7, EVANSVILLE 7, IND.
Branches in Atlanta, Boston, Chicago, Dallas, Detroit, High Point

In other cities, consult classified phone directory

DISTRIBUTORS in 56 Trading Areas
MORE THAN 26,000
READER—BUYERS

TO
REACH THE BUYERS
USE . . . .

THE "C.B.P." Plan

FOR

√ *Authenticated Readers*
√ *Complete Market Coverage*
√ *Lowered Sales Costs*
√ *Greater Sales Volume*

THE WHY! WHAT! and HOW! of C. B. P.

Currently FLOW has over 26,000 readers. FLOW reaches more than just "people"—or "names"—or "positions"—it reaches BUYERS. In addition to the C C A QUANTITY guarantee of circulation, FLOW now gives the advertiser an added quality value through the C B P (Certified Buying Power) plan. The plan was established after carefully selecting 46 outstanding material handling equipment distributors located in key marketing areas throughout the nation.

EACH DISTRIBUTOR—A FLOW CIRCULATION MANAGER

Each distributor subscribes for his active and most important material handling equipment customers, and for his best prospects. The distributor pays us $1.44 per year per subscription. These constitute an "identifiable" readership composed of authenticated, known buyers and users . . . the distributors being the authenticating agents! Thus—under "C B P"—Readers and Buyers become synonomous and interchangeable terms . . . whether you—as the manufacturer—sell direct or through distributors—FLOW guarantees CERTIFIED BUYING POWER. These 26,000 reader-buyers comprise the known national market for material handling equipment and, therefore, are the people to whom you must tell your story. Here is "CERTIFIED BUYING POWER"—around which you can most profitably build your sales and merchandising campaign.

Flow **MAGAZINE**